YOUR COMPUTER

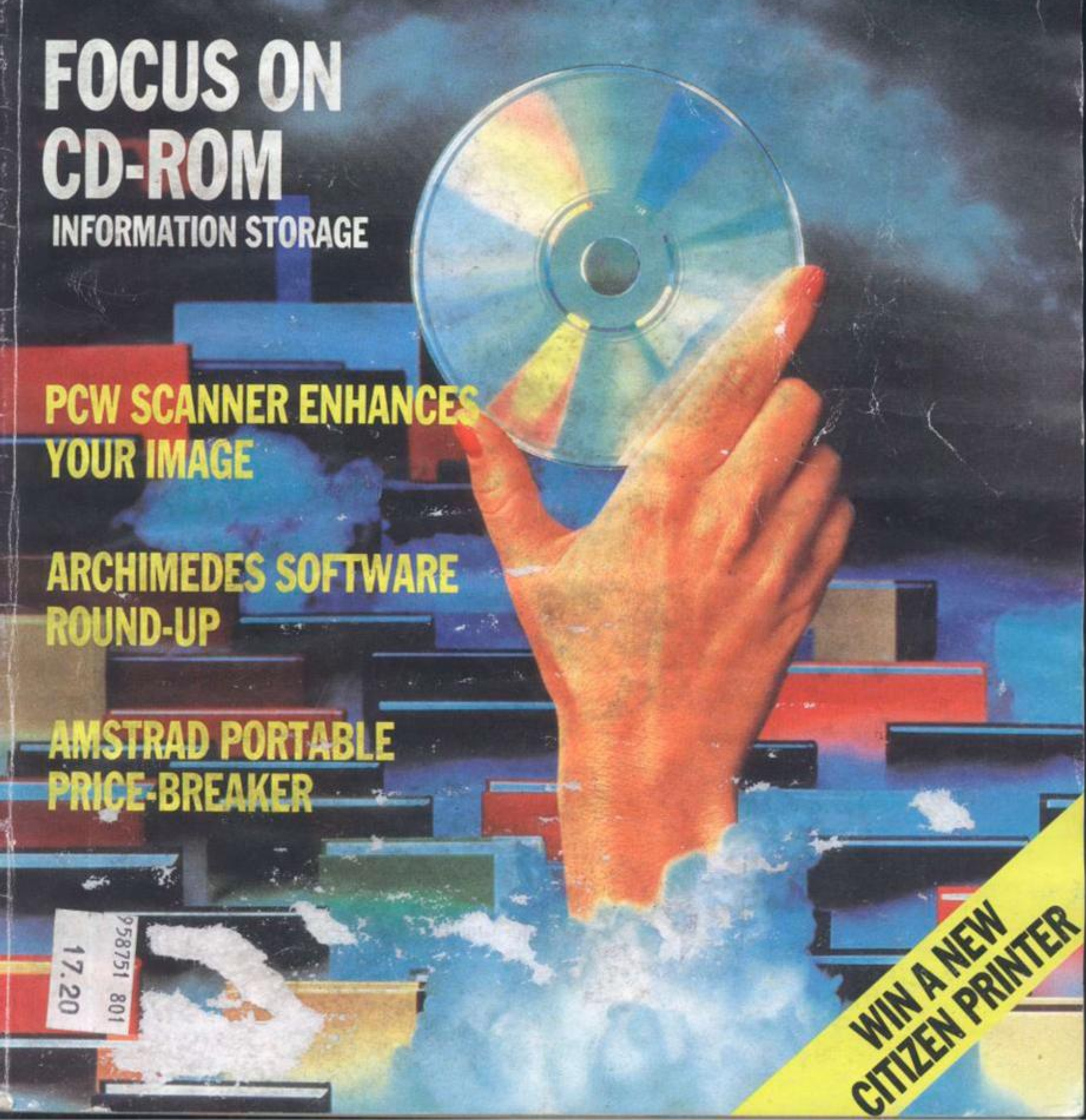
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JANUARY 1988

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Yet the same technology allows the Amiga 500 to play games so mind bending that only full-scale arcade machines have been able to play them until now.

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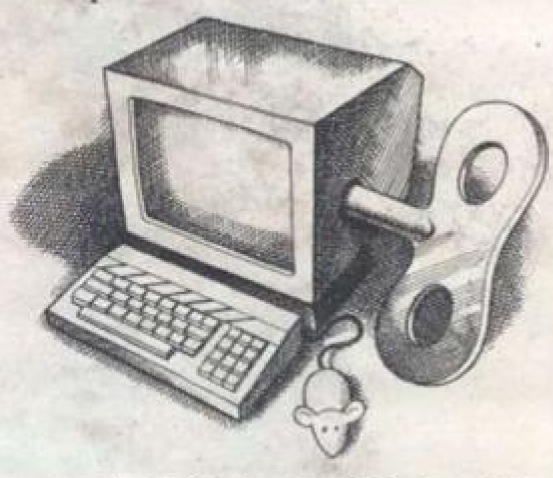
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Commodore

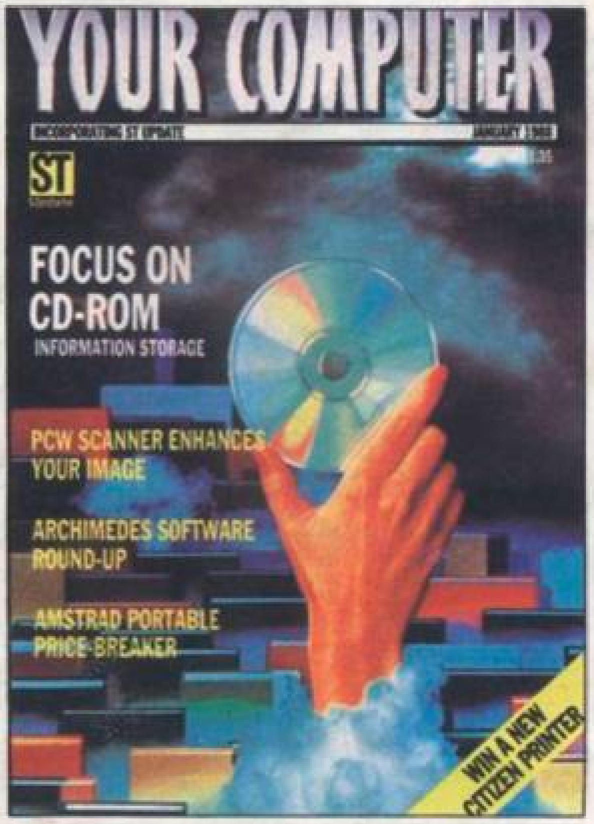
**Popular Computing Weekly, 22-28 May 1987.* *†Personal Computer World, February 1987.* ***Subject to availability.*

57 CBMUKLG.

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contents

JANUARY 1988



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ISSN 0263 0885

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Printed by Cradley Print, England.
Typeset by Time Graphics Ltd., Northampton.

Distributed by Quadrant Publishing Services, Quadrant House, Surrey, SM2 5AS. Telephone 01-661 3239.

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Subscriptions: U.K. £15 for 12 issues, Overseas (surface mail) £30 – airmail rates on request. Please make cheques/postal orders payable to Focus Magazines (allow 5 weeks from receipt of order to delivery of first subscription copy). Send orders to Your Computer Subscriptions, T.I.L., P.O. Box 74, Tonbridge, Kent TN12 6BW.

Back issues of the magazine from January 1986 onwards are available for £2.00 (U.K.), £2.75 (Overseas) from the Back Issues Department, Greencoat House, Francis Street, London SW1P 1DG.

FEATURES



SOFTWARE TOOLKIT

NEXT MONTH

'Whatever happened to . . .?' *Your Computer* digs around the computer graveyard and exhumes some long-lost machines. Also included is a round-up of music programs for the Commodore Amiga and a survey of word-processors for the Spectrum. On sale, January 14th.



COMMENT

Your Computer advances a cautious welcome to the Amstrad PPC. There is a down-side to this new portable computer, namely the quality of the screen and the weight. Alan Sugar is not worried about the former problem, believing that computer buffs whinge too much about screens and he feels it is more important that the PPC be powerful than that it should be a true lap-top, which it certainly is not with its battery-less weight of 12lbs.

The disadvantages of the weight and the screen are more than adequately compensated by other extras (the modem on the 640K model for instance) and, above all, the price. When a computer is launched for little more than half the price of its nearest rivals, that is a significant achievement indeed. If Amstrad is making PC computing economically viable for ordinary people, who is to argue with that? Portables have been expensive until now for no particularly good reason. Let us hope that Mr. Sugar has prompted a tumble in prices.

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news

IBM announces dates for OS/2

The onset of winter brought the U.S. micro industry back to life with Comdex Fall, the biggest and most gruelling micro show in the U.S. From the global point of view, the big news was that IBM announced a shipping date for its new operating system, OS/2.

This means that all the dependent companies can now publicise their shipping dates for OS/2 versions of their products. First out of the traps will be the major clone makers, who will start shipping OS/2 machines the software houses which around the turn of the year and will be moving OS/2 versions of their products – MS-DOS versions will not run under OS/2 – soon afterwards. Following this, the low-cost clone makers should start moving in, so a commitment to OS/2 by Amstrad and the like in 1988 is not altogether out of the question.

IBM, however, is not helping matters by announcing two dates for the shipping of OS/2 – December in the States and January in the U.K.

Even then one might think it would all end by late January – but one might be wrong. The OS/2 which is being delivered is version 1.0, which is character-based.

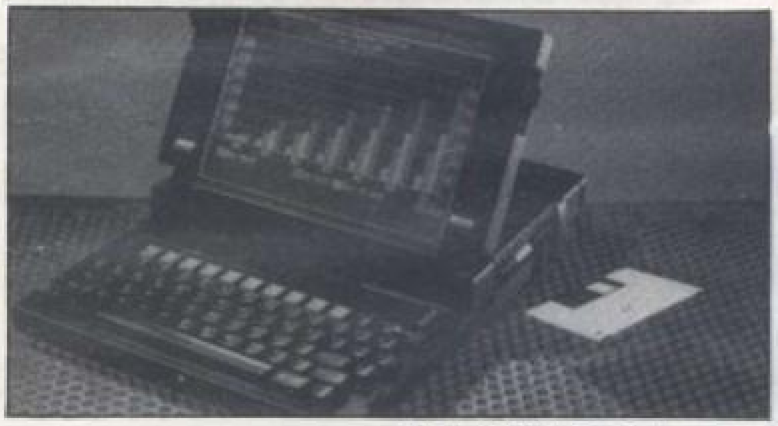
The real business, however, will be version 1.1 which will version 1.1 which will incorporate *Presentation Manager*. Presentation Manager will be the IBM version of Microsoft *Windows* and the smart money is on 1.1 being the system which will sell the software and to which there will be developments. Look for less-clued-up companies committing themselves to 1.0 without realising they have to go much further.

Atari moves up

Simultaneously with Comdex, Atari announced its third quarter results – profit up 79.4 percent to £8.1 million – and predicted it would be moving into audio, video, telephones, TVs and anything else you happen to think of in the next year or so.

The rationale behind it is the company's purchase of the Federated chain in the States, which gives it a chain of Tandy-style outlets. Atari also needs somewhere to sell its CD player. Somebody should tell Bob Gleadow of Atari U.K. who, last time we talked, only saw CD selling into heavily technical-type situations.

National GRiD launch of lap-tops





● **The GRiD 1500 Series (above) and the GRiDLite Plus (right) – upmarket lap-tops at upmarket prices.**

Three lap-tops from GRiD were launched on the same day and at the same place – London's Cafe Royal – as the new Sugar babies.

The GRiDCase 1500 Series lap-tops are the only battery-powered 286 and 386 portables on the market. They weigh the same as the PPC – 12lb. – but the screens are much clearer.

Naturally, one has to pay for such technology. The 10MHz Model 1530 has an 80386 microprocessor and costs £3,395. The 286 Model 1520 costs £2,495.

The GRiDLite Plus lap-top is a snip at £1,395 or £1,495 with 640KB RAM. It weighs only 9lb. and has a 8086 microprocessor and a 1.4MB internal diskette drive.

Pecan caters for programming nuts

Pecan Software Europe has announced that it is to offer a C-compiler in February. Versions will be available for all 16-bit machines.

The company has also launched an upgraded version of its integrated software package for the PC, *Jack 2*. Version 3.1 has a faster start-up and simplified installation. Until the end of December it is on offer for £69, a saving of £30 on its normal price.

news CONTINUED

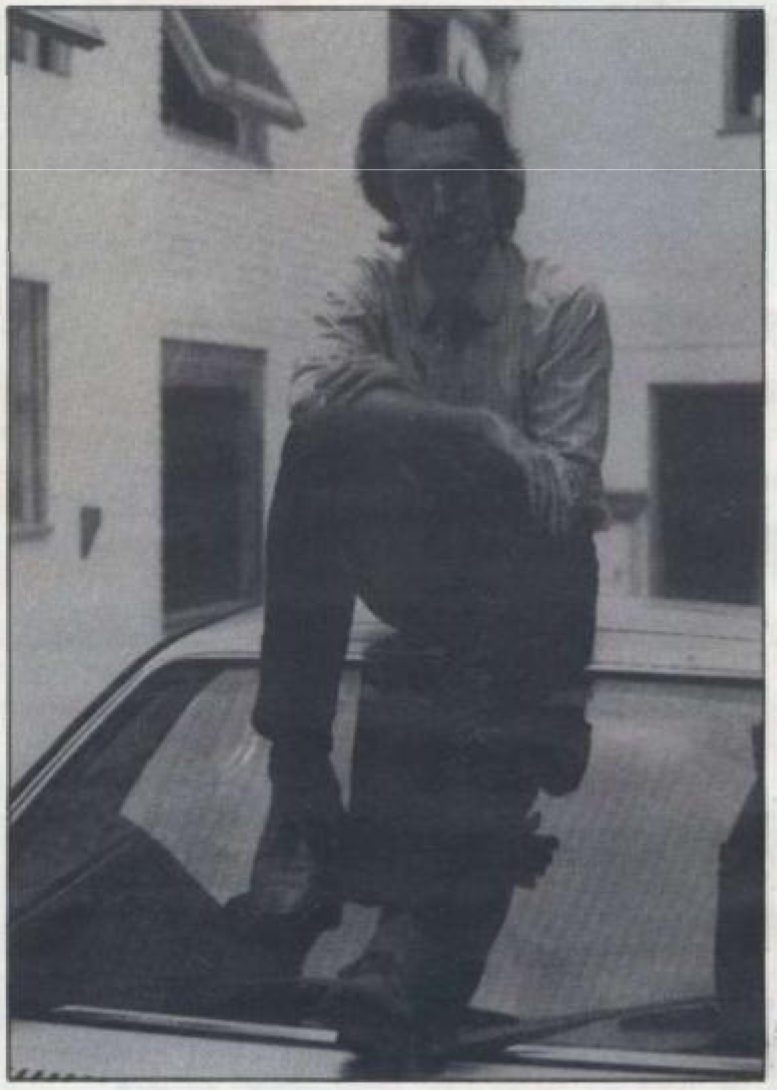
Motorola builds 'most powerful microprocessor yet'

American electronics and semiconductor manufacturer Motorola has built a chip which it claims is the most powerful microprocessor yet seen. The 68030 is a 32-bit microprocessor, twice as powerful as the Intel 386 which is currently favoured by IBM, Compaq and other large corporations.

Motorola hopes that the development of the 030 will enable 32-bit computer systems to sell for about £2,000. Most sell at present for between £6,000 and £8,000, although the Acorn Archimedes, which also employs true 32-bit technology, is available in the U.K. for about £700.

The first systems based on the chip are likely to roll off the production line early in 1988. Motorola is currently on an even more powerful fourth generation 68040 chip.

Virgin takeover

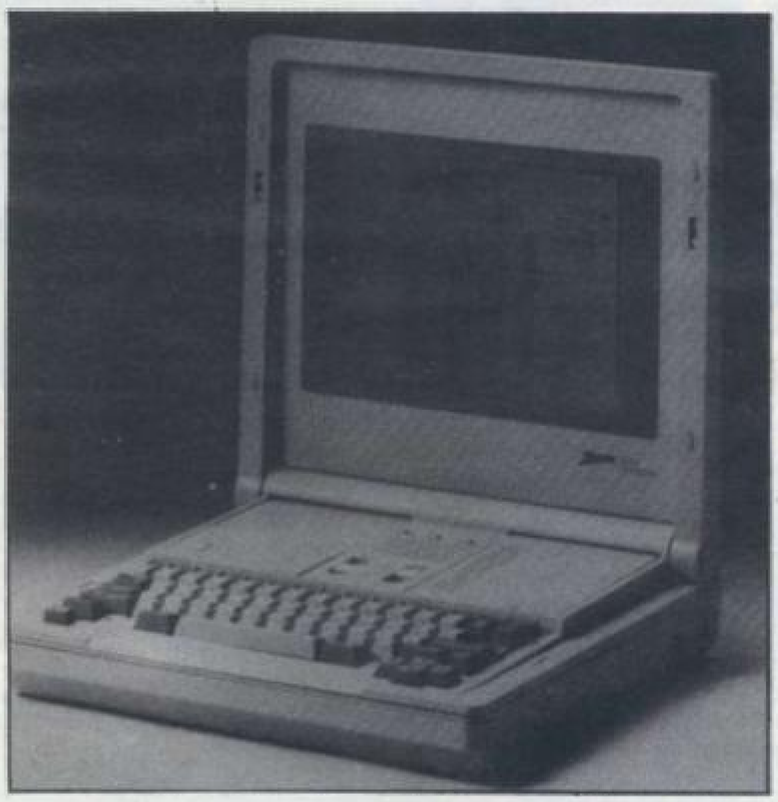


● **Nick Alexander of Virgin Publishing is now on the Mastertronic board.**

The hottest item of news in the games world recently has been the acquisition by Virgin of 45 percent of Mastertronic. The deal took six months to complete and is rumoured to have cost in the region of £4 million.

The acquisition will mean that Virgin has a ready-made budget label to hand, something the company might appreciate after its abortive efforts in that direction with Rabbit two years ago. Older Virgin games such as *Dan Dare* will be moved to the down-market label and more money will be pumped into the Mastertronic full-price software interest, Melbourne House.

One major area for expansion is the U.S., where Virgin operates as an affiliated label to Electronic Arts. Arcadia, the U.S. arm of Mastertronic, has signed with EA as well, and will be channeling Melbourne House products through the American company.



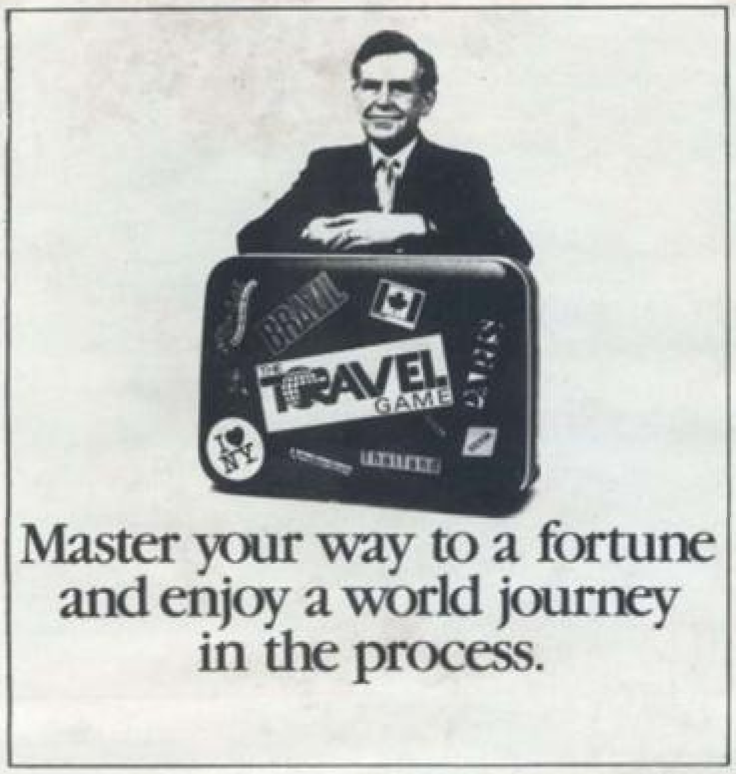
Zenith portable 386 launch

● **The Zenith Z-183 is now available with a 20MB hard disc.**

Zenith may just have made it with the 386 portable, current flavour of the month, but as companies keep launching them – Toshiba, Compaq, Grid – they will be boring in a very short time.

The Zenith version has the advantage of being an upgrade rather than a tull machine, so for a U.S. price of £2,699 it allows you to turn your Z-248 PC/AT portable into a 386 machine.

Slightly downmarket of this, Zenith has introduced a 20MB hard disc version of its low-cost portable, the Z-183.



● **Iceman in a suitcase – Magnus Magnuson endorses *The Travel Game*.**

Have personal computer, will travel

An unusual method of promoting a computer game has been adopted by Ruleformat of Cambridge. With a mugshot and endorsement from Magnus Magnusson, Ruleformat has announced in the Sunday newspapers a game called the *Travel Game*.

What is different about this PC-based software is that a large cash prize is being offered to the first person to crack all its puzzles. Standing at £5,000 when the game was launched on October 10, 1987, the prize goes up by £1 for every copy sold. The winner will be announced next spring but do not try to cheat because those who have completed the Endgame, the final puzzle, will have their discs scrutinised closely by the judges.

The solution to the Endgame is to be found initially by travelling round the world, searching for different artefacts which have been stored in a number of souvenir shops. You have a limited budget for transport and might have to resort to busking or other work to earn sufficient funds.

The Travel Game costs £24.95. For further details, ring 051 708 8202.

DR casts out networks

With scant regard for OS/2 and the IBM view of the future of microcomputing, Digital Research has launched version two of Concurrent DOS 386, which takes a multi-user rather than networking view of multi-PC installations.

The basic sense behind CDOS 386 is that it allows several programs to run on a single 386 machine at the same time. Once IBM ships OS/2, it will be possible to do this anyway but OR sees CDOS as having advantages from the multi-machine point of view. OS/2 will allow one machine to behave in a souped-up fashion likely to baffle a single user but for related units of PCs it will still be necessary to mess around with the networks.

CDOS on the other hand allows you to hang PCs off a main machine and those PCs will use the power of the main machine simultaneously. Effectively you wind up with the same sort of set-up as you would with a network but you make a few gains from the point of view of cost and efficiency.

One of the weirder gains is related to licensing deals – some software houses allow end users for a per processor charge to run a package across several machines, and on a network this effectively means the processor per user. Multi-user systems have only one processor.

Another factor to take into account is the ability of CDOS to pull MS-DOS applications out of the box. The first version of CDOS 386, launched in the spring, did this but was slow and could not handle badly-behaved programs. It is funny how DR was not shouting this from the rooftops at the time. The new version, however, is relatively bullet-proof and as OS/2-based rivals will need re-written software, OR has the drop on them.

Clive cleans up



Shock winner at Comdex was Sir Clive Sinclair, who after many years and several failed attempts at getting into the U.S. market may finally have cracked it with the Z-88. The 2lb. portable made its first appearance at Comdex, and the ever-fickle U.S. public seems to have liked it.

A correspondent for the U.S.-based Source on-line information service described the Z-88 as "a breath of fresh air" and it seems to be different enough from the run of the mill offerings to overcome its lack of IBM compatibility.

The British portable rival from Amstrad, on the other hand, does not seem to have set the world on fire, rating less coverage than the Sinclair machine.

Initial reactions for the States indicate that Amstrad may have pitched the PPC too low and that a better screen at £100 more – it will cost £799 – might have been just the ticket.

news CONTINUED

Dixons denies IBM retail rumours

It has been rumoured that Dixons is applying for authorisation to sell IBM equipment.

The rumours are vigorously denied by Dixons but sources suggest the retail chain is pleased with the sales it has achieved from the Amstrad PC and wants to broaden its horizons further into the small business/office equipment market.

Dixons took over a retail chain in the States, where IBM products are sold into the home more than they are in the U.K. earlier this year and may be inclined to try to repeat the experience. If the deal does go ahead, Dixons is likely to start stocking the bottom-of-the-range PS/2 Model 30, adding the higher numbers later.



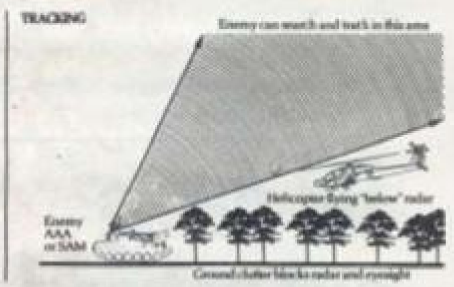
● The IBM PS/2 Model 3D – on sale in Dixons soon?

Gunship removed from blacklist

Microprose is claiming victory in its long running battle with the German government – or more strictly with the *Bundesprufsteia fur Jugendgefahrende Schriften*, the department which banned *Barbarian* by Palace.

For obvious historical reasons, Germany is sensitive about the more military sort of computer games and tends to put them on a blacklist. Microprose, which has had several games fall into this category, has managed to have the ban on *Gunship* lifted and, subject to a second hearing, hopes to have its other titles moving there as well.

Non-corrupting Microprose software currently on the list includes *Silent Service* and *F15 Strike Eagle*. The latter probably doesn't go down too well in Libya either.



● Microprose flies into hostile German territory with *Gunship*.



New releases for Amiga

Kuma Computers is about to issue a number of software packages for the Commodore Amiga. Due any day is *K-Spread 2*, a spreadsheet which will cost £79.95. It is to be followed soon by a graphics package and a comms unit which will cost £49.95 each. The same price will buy you two further products in the spring, a database and a word processor, also for the Amiga. In addition, Kuma has announced that it is to reduce the price of its K-Seka 68000 assembler for the Commodore Amiga. Previously costing £79.95, it now costs £49.95.

Delayed start

Borland's *Sprint* word processor now looks unlikely to ship to this country until January, although European operations director Alain Blancowart denies that there are any problems with the product.

The company is now shipping *Sidekick Plus*, the successor to its *Sidekick* memory resident utility.

At a price of £195, the program is pricey for the home market, but has comms, database, phone book and a wealth of other zippy features built-in.

FOR AS LITTLE AS £159 YOU CAN BE THE HOME SECRETARY.

There's more to home computers than fun and games.

Just add a printer (and the necessary software) and your computer becomes a word processor. And you become a very efficient secretary.

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Because the DMP 2000 costs just £159 (incl. VAT).

Yet it will print draft quality text at up to 105 characters per second. And Near Letter Quality at up to 26 characters per second.

As you would expect it is compatible with all Amstrad home computers. But it is also compatible with Epson and any other make that has the same Centronics Parallel Interface.

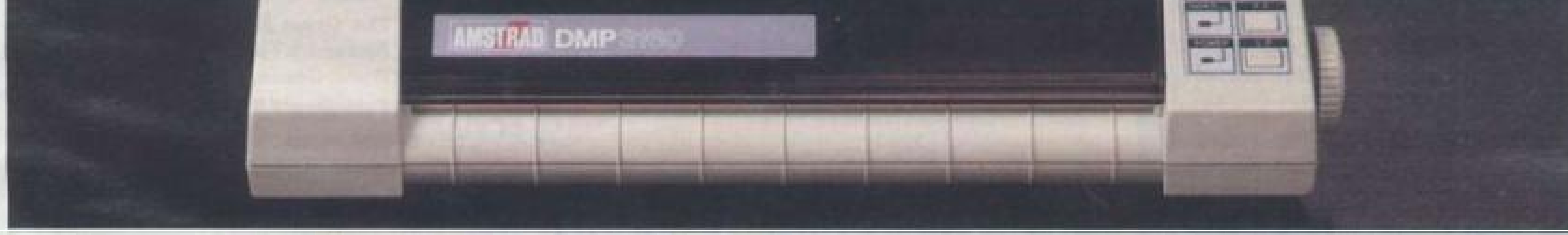


NEW

If you've already graduated to a PC there's the new Amstrad DMP 3160 printer.

It's compatible with all Amstrad PC's as well as Epson and all other IBM compatible PC's. It costs just £199 (plus VAT)*.

Both printers have easy front loading and both will take ordinary A4 paper. One of them is bound to be right for your particular home office.



Please send me further information on the DMP 2000 ☐ and the DMP 3160 ☐

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ADDRESS

YC1

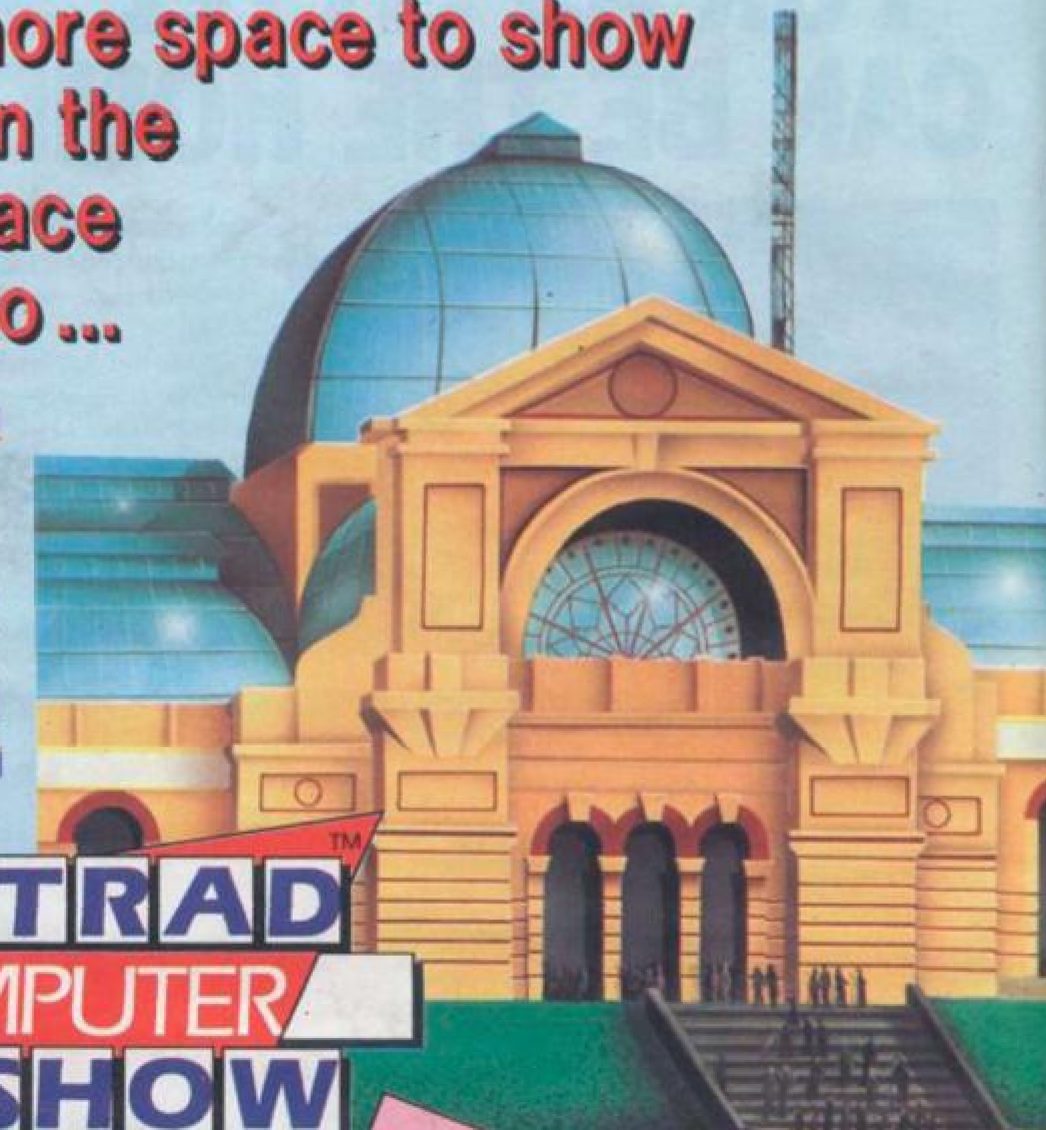
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letters

Something to say about personal computing? Why not share it with other readers? Write to Readers' Letters, Your Computer, Greencoat House, Francis Street, London SW1P 1DG. Letters may be edited for length. Don't forget to include your name, age and full address.

Don't mock turtle



I write concerning your review of the Amstrad PCW 9512 by Ian Rook in the November '87 issue. The review is fine but one paragraph of it incensed me: "Dr. Logo is a supposedly educational language. It only goes to show that educationalists do not live in the real world and that they live in ivory towers talking through hats."

What an extraordinary statement! Does Mr. Rook know anything at all about the language? What are his reasons for such seeming vehemence? He can surely have no idea of the potential of the language as an educational tool, particularly in schools.

Turtle graphics is very useful as a means of exploring geometrical concepts. Perhaps Mr. Rook would care to look at "Turtle Geometry" by Abelson and diSessa (MIT Press) if he is in need of convincing of the scope of the subject.

There is also a great deal to Logo beside turtle graphics, its list processing operations being especially rich and leading to much potentially valuable work in many educational fields.

Admittedly, Logo is slow, but that is not important in the context and it is vital that it should be interactive (which slows it down). Of course it would not be suitable for many "real-world" applications which is presumably what Mr. Rook meant – but then it is not intended to be a commercial programming language such as C or FORTRAN.

If Mr. Rook could see the effect that half an hour of Logo programming can have on a child's understanding geometry, I'm sure he would be less hasty in his judgement.

Jonathan Court
Leeds

Mr. Court's letter was passed on to Mr. Rook who penned a reply to the effect that geometry was better learned by the purchase of a pair of compasses, a pencil and a ruler. He also feels that teaching children a non-commercial langauge is a misleading approach for later careers or, as Mr. Rook puts it, 'a bit like teaching people to drive in a C5 and then sending them out to get jobs as bus drivers'.

Looking for a lost cause

A few years ago when the ZX81 computer was in vogue, you advertised in *Your Computer* the *Fuller FD* system of adaption applicable to the ZX81.

Sadly this company ceased to trade in September 1986. Can you help me by advising whether this system or similar is still available anywhere else?

J.J. Squires
Doncaster
South Yorks.

Frankly, no. We have no idea what happened to the Fuller FD system. Can any readers help Mr. Squires with information?

Board meeting

I am a final year computing student at the University of Ulster at Coleraine. Part of my degree requires that I design and implement a system from scratch. Ordinarily this would be a difficult task, but my project, a bulletin board, is undoubtedly too large a problem for a single individual since I only have until the end of February to complete it. As this has already been acknowledged by my lecturers, it is not my immediate problem. My major difficulty is that neither I nor my lecturers can find a single book or reference which would be of any help.

With your expertise and knowledge of the industry, can you help with any information?

Kieran Hegarty
Londonderry
Northern Ireland

The trouble is that programmers who write systems like this do not tend to write books, the market being so small. As an alternative, you could hook up to a number of different bulletin boards and see how they work from the user's point of view.

Next, get in touch with a couple of sysops, (the people who run the bulletin boards) and ask for advice. Failing any forthcoming help from these sources, you should be able to do a design by using one and looking at it as though it were a database.

Making the right connections

Can you recommend a supplier of a suitable interface and connector from a Spectrum Plus to a Seikosha GP-100AS graphic printer? The handbook states that the method of interface is RS232C, Serial non-synchronized busy/ready protocol and that the connector is a 25-pin D-type.

O.S. Anderson
Tunbridge Wells
Kent

Depending on whether your Spectrum is a Plus or a 128 Plus, it will not/will have built in a RS232 interface. If it has not, then Interface One, which also provides the microdrive interface and networking, is a good bet. For either machine, you will need cable to attach the Spectrum to the printer.

Learning to crack the code

I am a 12 year-old boy who owns a 48K Spectrum. I learned Basic at primary school and I have discovered a lot more through books.

I have tried many computer magazines in search for books on machines but they could not help. this is a subject about which I know nothing. Can you help me?

D. Meagher
Rathdowney
Eire

Since you you know the basics of programming, learning machine coding should not be too difficult. The best way to start is with an assembler such as HiSoft Devpac and the following books: 'Z80 Assembly Language Programming' by Lance Lebesthal and 'Assembly Language for Arcade Games and other Fast Spectrum Programs' by Stuart Nichols. Both are published by McGraw-Hall of Madenhead, Berkshire.

The main thing with learning machine codes is to use the books as reference material and to do as much programming as possible.


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● **Three smart V22 modems: the Digital Matrix 1200P, the Amstracom 1000 and the Miracle Technology WS4000.**

In Europe and the U.K. especially, the V23 comms standard – 1,200 baud receive and 75 baud transmit – has been dominant for a number of years. Almost everywhere else it is either 300 or latterly 1,200 baud full duplex – V21 and V22 respectively. V23 was a clever standard, made popular by viewdata systems such as Prestel, as the hardware to support it was relatively cheap. Original viewdata systems did not need a fast send speed – 75 baud was faster than many people could type – but these days electronic mail has been becoming increasingly important and sending pre-prepared text at 75 baud – fewer than 10 characters a second – has sounded the death knell for V23.

Full-duplex 1,200 modems have, on the other hand, been very expensive until now. Add the fact that most networks now support V22, or are converting to it, Prestel included, and it is inevitable that the V22 modem market should be undergoing a revolution.

Three years ago you would have been lucky to get a V22 modem for less than £400 and even then it would probably have been a dumb device, i.e., not software-controllable. We look at three V22 capable modems, the cheapest being less than £100 and they are all smart.

The Miracle Technology WS4000 is a spin-off from the original 3000 series launched about two years ago. Both the 3000 and 4000 series start with a base V21/23 model which can be upgraded to include V22 and even V22bis 2,400 baud.

Miracle introduced the 4000 as a cut-down, more affordable alternative to its flagship 3000 range. The battery-backed number store, printer/control port, audio call monitor speaker and some operating features, such as tone dialling, have been removed from the 3000 specification, saving more than £100 on the price.

The recommended price for V21/23 base WS4000 is £169 plus VAT but it will cost another £250 to upgrade to V22. So the V22 WS4000 represents the costlier end of the V22 budget market. In its favour are the plethora of indicator lights on the slim front panel, a good extended Hayes-compatible control set, a comprehensive if sometimes confusing manual, and good buffering to your terminal program comms speed.

There are 10 LEDs to let you know what is happening, which means if you have difficulty trying to get on-line to a new system or trying a new terminal program, you will probably find what is wrong more quickly. The Miracle extended Hayes commands encompass all the usual requirements and there are 32 status registers, twice as many as the Hayes Smartmodem standard.

Serial port connection is via a standard RS232 25-pin D connector and there were no difficulties hooking the 4000 to a variety machines from BBCs to PCs with standard cables. You can communicate with the 4000 at a variety of speeds from 75 to 9,600 baud. That means the modem will be tolerant of split baud rate terminals, especially 1,200/75 viewdata ones.

Automatic speed sensing was very good. We found the manual very comprehensive but as it is standard issue for the complete range of 3000 and 4000 models, we were sometimes uncertain of whether a documented feature applied to our particular modem.

There is no doubt that WS4000 is a fine modem and its V22 capability worked flawlessly. Compared to the WS3000, we missed the audio call monitor, something which is very useful if you suffer old telephone lines, and for the price we expected tone dialling to be featured.

Though there is no battery back-up for the internal number store; its function remains and very short power downs should see the stored data preserved. The entire WS3000 and 4000 ranges are fully BABT approved.

It is a very competent and well-built device but what about the competition? In the Astracom 1000 T the 'T' stands for triple or triple standard. Like the WS4000, Astracom designed its modem to be based round a dual-standard V21/23 base model and both use the ubiquitous AMD7910 or 7911 modem chip in this base unit.

The T model has a V22 board added to the V21/23 motherboard. At £245 plus VAT the Astracom is cheaper than the WS4000 upgrade on its own but the reason the Astracom is less expensive is because its designers have simplified the design compared to Miracle.

There are only four LED indicators on the front panel – power, carrier, on-line and data – though the data light flashes cleverly between green and red according to the data transmit direction. Another economy is the adoption of a simple five-way domino DIN plug for the serial connector.

Some terminal hardware may need extra handshaking lines which the Astracom does not support but in practice almost all micros will be capable of talking to this modem. Cables might be a problem because of the non-standard connector but Astracom says it usually supplies made-to-order cables with modems.

Once again there were no obvious faults with the Astracom Hayes command set but there are only 20 status registers compared with the 32 of the Miracle. Tone dialling is not standard on the base model but the V22 T model has it as standard. There is no re-set button, so you have to power down the modem to clear it. There is no battery back-up store; Astracom says this function is usually found on good terminal packages.

ications news by Ian Burley

Once again there is no audio monitoring of the telephone line, something we would like to see standard on all modems. Oddly, the 1000 features a Centronics printer interface, a throw-back to the days when of predecessor of the 1000 was designed with the Sinclair QL in mind.

The Miracle WS4000 is a less-frills version of the 3000 but the Astracom has even fewer frills. We were impressed by the Astracom. It worked well and for more than £100 less than the Miracle does almost everything we would expect of this modem type. At the time of writing Astracom was still awaiting the results of BABT testing on the T model, although the standard V21/23 version is approved.

Finally the baby of the group, the Digital Matrix 1200P imported from Datatronics in Taiwan by Digital Matrix and sold for £99.95. The complete modem, 9V PP3 battery-powered, is about the size of a medium-sized cigarette packet. The modem is not approved and it is designed for the U.K. market with American telephone connectors, too, but it is included in this review as a hint of what could be commonly available in the not-too-distanct future.

The modem is V21/22 only, so for 200/75 baud viewdata freaks that is bad luck. With the exception of number stores and V23 speeds, the 1200P can accomplish all the important functions of the other two modems. It has a standard 25-way D connector which occupies the whole of one end of the device and there is even a tiny but loud internal speaker for monitoring the line.

Both tone and pulse dialling are available. The Hayes command set is virtually a mirror image of the Hayes Smartmodem standard and we had no problems running popular packages on the device, using several types of terminal micro.

The 1200P is an excellent device and if Digital Matrix gains approval the competition will seriously be threatened. Fast-developing technology points to modems of this price and specification. Wait for some impressively cheap high-speed hardware from Amstrad in the near future, too.

Astracom
Tel: 0792 473697

Miracle Technology Ltd
St Peters Street
Ipswich IP1 1XB
Tel: 0473 216141

Digital Matrix
75 Willow Road
Solihull
West Midlands
B91 1UF
Tel: 021-704 1399

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Micronet Music City

One thing comms enthusiasts appear generally to agree about is their voracity for music.

After a small BBC Music 500/5000 music synth database on Micronet closed a few months ago, there was an outcry from readers. Now Micronet has re-launched its music database, called *Music City*.

Run by Liverpudlian, Ian Guinan, the area will feature most aspects of computer music and down loadable music telesoftware files. The area will be an exceptional source of hints and tips for the various machines and hardware systems available, so Guinan admits that there will be a BBC and Commodore 64 bias initially. Micronet public relations manager David Rosenbaum, who also edited a music database before he joined the Micronet staff full-time, commented "Micronet is an ideal medium for computer music coverage, especially for making completed music available via telesoftware".

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Microscopic modem

West Midlands-based Digital Matrix has launched what must be the world's smallest Hayes-compatible modem, the Datatronics Discovery 1200P pocket modem. Measuring 5in. by 2½in. the device is battery-powered via a single 9V PP3 cell and fits easily into a shirt pocket.

One end of the unit is dominated by a standard 25-way RS232 D-type serial connector and the modem is V21/22 capable – 300 and 1,200 baud full-duplex only.

The modem, designed for the U.S. market, is at present unapproved but Clive Williams of Digital Matrix is hoping that sufficient demand will make the costly investment of BABT approval testing worthwhile. The 1200P sells for £99. More details can be obtained from Digital Matrix on 021-704 1399.

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New Amstrad PPC has a V22bis modem option

The new Amstrad portable PC-compatible, the PPC, has an even more remarkable upgrade option, from a comms point of view at least. The PPC1640, which starts at £499 plus VAT, features a V21/22/23 and V22bis – 2,400 baud – intelligent modem as standard. The device will be available as an upgrade to the cheaper PPC1512 range, though no price has been revealed.

When it is considered that many V22bis modems alone cost around the £500 mark, it makes it apparent how remarkable the new PPC is from a comms angle. Fuelled by the specification of the PPC modem, rumours are strengthening that Amstrad will soon be selling a stand-alone V22bis capable modem some time in the new year at less than £200, possibly with a PC modem-card version, too.

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Hackers' Encyclopaedia

If Hugo Cornwall's first book was a Hackers' Handbook, his new effort published recently, by Heinemann at £14.95, might be termed the Hackers' Encyclopaedia. *Datatheft* is a thick, hard-back volume packed with information about the security, or lack of it, of computer systems and databases in big business.

Cornwall explains how modern industrial spies gain access to important computer data and also provides tips on how to make that data more secure. Cornwall notes that there is little protection in the law for victims of data theft.

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Comms for the Z-88

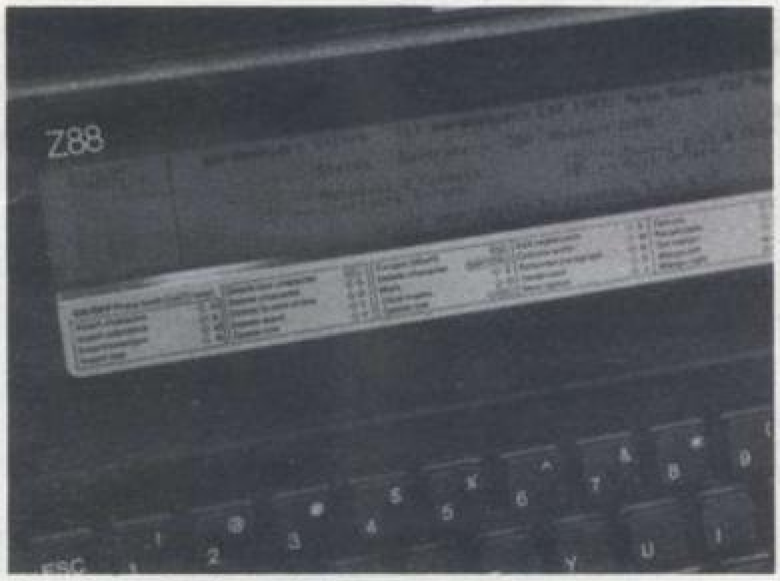
Aylesbury-based business comms specialist Wordmongers Ltd has produced a set of comms cartridges for the Cambridge Computers Z-88. Although the Z-88 has limited dumb terminal facilities built-in, file transfer protocols and intelligent modem support unfortunately are missing.

Wordmongers has produced a range Z-term ▶

program cartridges featuring Hayes and dumb terminal compatability, the X-modem file transfer protocol, ASCII text handling using XON/XOFF flow control, a directory of up to five auto-dial telephone numbers and the use of five user-defined function keys.

The Z-term variants are G-term, a version tailored for use on Telecom Gold, with automatic log-in either directly to Gold or via PSS, and M-Term, which is configured specially for Mercurylink 7500 users.

Also for the Z-88, Wordmongers has produced a Phone Post System cartridge, a terminal program for use with the Wordmongers PPS system which converts a base computer, say a PC, into a versatile private electronic postbox.



There is no viewdata solution solution for the Z-88 yet, though Wordmongers is looking into it. All the Z-88 cartridges are £49.99 each including VAT and Wordmongers can be contacted on 0296 437878, Gold 84:WOT001 or Prestel 029634822.

● **Wordmongers Ltd. of Aylesbury has produced a set of comms cartridges for the Z-88.**

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Major order for Linnets

Pace Microsystems has secured a £200,000 order for adapted Linnet V21/23 – 1,200/75 and 300/300 baud – Hayes-compatible modems from the Open University. They have been ordered for Spring, 1988 for use by second-year undergraduates studying information technology.

Pace will provide a slightly-revised version of the Linnet for exclusive use with the OU mainframe computers.

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Compunet diversifies

The specialist Commodore 64/128 micro database service, Compunet, is set to expand from its C64 origins for the first time. At this year's Personal Computer World Show, Compunet demonstrated a new terminal program for the Commodore Amiga, permitting access to the Compunet database and its alpha/graphic character display. An ST version is expected soon, while access for BBC Micro users has been rumoured for some time.

Compunet has held on to a hard core of C64 users since its inception four years ago and besides its Jungle, where users can upload and download their programs, the service offers its own version of Richard Bartle's Essex MUD – Multi-User Dungeon. Compunet can be accessed either via PSS, at up to £1.80 per hour, or Istel, 60 pence per hour, excluding telephone charges.

Wordmongers Ltd.

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PPS Terminal software – IBM/Apricot	£49.99
PPS Terminal software – Cambridge Z88	£49.99

Wordmongers **IX** file transfer system.

File transfer is about sending a copy of a file, in its entirety, from one micro to another. The Wordmongers TX package is now available for over 100 different micros including most popular CP/M and MSDOS machines as well as PC compatibles and the Sinclair QL.

TX has been in use for over 5 years.

TX is supplied for the pair of machines required. This pack contains the disk or cartridge for each of the pair to be linked, a manual and cable.

A TX pack for a pair of machines, one of which is the Z88, is £99.50.

Wordmongers software is licensed not sold. The full details of the software licence are available upon request from Wordmongers Ltd.

MODEMS

Acoustic couplers

1200/75 version £49.99
300/300 .... £138.00

Direct connect modems
1200P is a new small Hayes compatible pocket modem £113.85

The answercall modem is 300/300 direct correct modem £69.95

WS4000 is a Hayes compatible desktop modem which can be supplied in a variety of formats from 300/300 to 1200/1200.
i.e. WS4000 V22 .... £479.00

Modem cable (if required) £9.99

GAMES

32K Eproms–Normal price–Free game.

Normal price and we throw in a game. When you are bored with the game, use it as a normal Eprom £19.95

TERMINAL SOFTWARE

Z-term – General purpose with X-modem and user defined function keys.
G-term – Telecom Gold terminal
M-term – Mercury 7500 terminal.
P-term – Wordmongers PPC terminal.
All terminals cost £49.99

Prices are valid from October 1987 and include V.A.T. at 15%. Postage & Packing must be added to the amount you send at the rate of £2.00 per order.

Terminal Software

There are currently three varieties of this suite available for the Z88.
These programs are also available on the Amstrad PCW 8256.

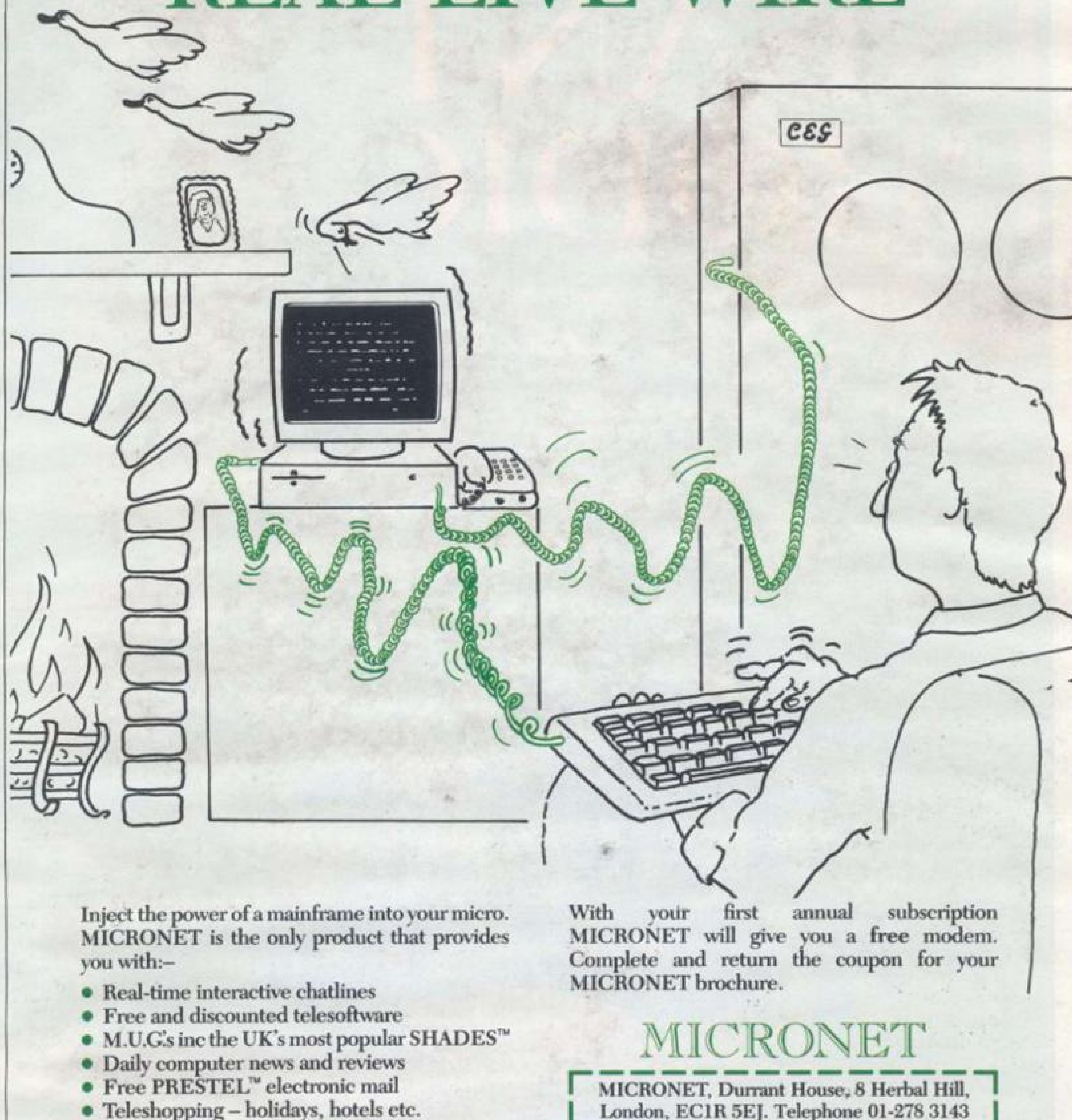
The three versions are:-

Z-term. Although the Z88 comes with a terminal package, there are certain essential facilities which are unique to Z-term.
Z-term Features:-
◊ Hayes and dum modem compatible.
◊ File transfer using X-modem.
◊ ASCII text file capture and transmission using XOH/XOFF flow control.
◊ Autodial directory facility for 5 numbers.
◊ 5 user defined function keys.
Z-term is £49.99 per copy inc VAT.

G-Term. Wordmongers G-term is a variant of Z-term specially tailored for easy access to Telecom Gold and the other parts of the international Dialcom network. Wordmongers G-term for the Z88 incorporates most of the features of Z-term, as described above with the additional benefit of automatic log-on to Telecom Gold.
G-term Features:-
◊ Hayes and dumb modem compatible.
◊ File transfer using X-modem.
◊ ASCII text file capture and transmission using XOH/XOFF flow control.
◊ Autodial directory facility for 5 numbers.
◊ Automatic log-on to Telecom Gold when connected directly or when corrected via PSS.
G-term is £49.99 per copy inc VAT.

M-Term. Wordmongers M-term is another variant of Z-term tailored for the Mercury 7500 electronic mail system. Wordmongers M-term for the Zi incorporates most of the features of Z-term, as described above with the additional benefit of automatic log-on to Mercury 7500.
M-term Features:-
◊ Hayes or Dumb modem compatible.
◊ File transfer using X-modem.
◊ ASCII text file capture and transmission using XOH/XOFF flow control.
◊ Autodial directory facility for 5 numbers.
◊ Automatic log-on to Mercury 7500 when connected directly or when connected via an intermediate network.
M-term is £49.99 per copy inc VAT.

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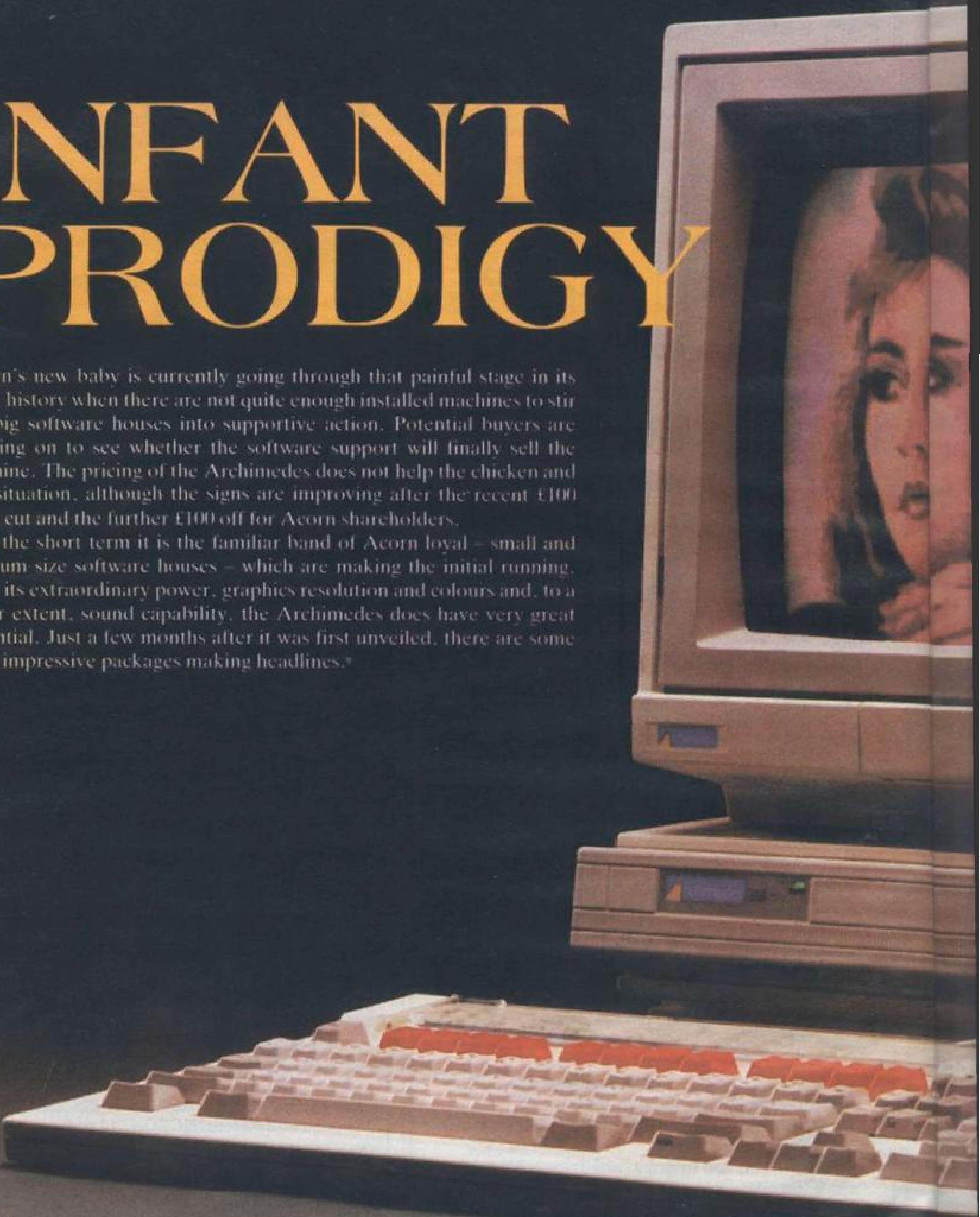
YC/1/88

Micro____________

INFANT PRODIGY

Acorn's new baby is currently going through that painful stage in its short history when there are not quite enough installed machines to stir the big software houses into supportive action. Potential buyers are hanging on to see whether the software support will finally sell the machine. The pricing of the Archimedes does not help the chicken and egg situation, although the signs are improving after the recent £100 price cut and the further £100 off for Acorn shareholders.

In the short term it is the familiar band of Acorn loyal – small and medium size software houses – which are making the initial running. With its extraordinary power, graphics resolution and colours and, to a lesser extent, sound capability, the Archimedes does have very great potential. Just a few months after it was first unveiled, there are some most impressive packages making headlines.



Zarch

***Zarch*, marketed by Superior Software for £19.95, is already becoming a buzz-word for Archimedes** games potential. David Braben, co-author of the massively successful *Elite* arcade/space trading game with Ian Bell, has polished up the head-turning *Lander* demo supplied on the Archie Welcome disk to turn the program into possibly the most talked about game of the year.

You control an Elite-style hover-plane which can be guided over a three-dimensional patchwork quilt landscape which undulates across the screen in a truly mesmerising fashion. Fly across the calm seascape and the jet from your vertical thruster leaves a highly realistic watery spray of turmoil in its wake. Each little water droplet pixel apparently obeys the law of gravity, and there is hardly any loss of real-time motion through calculation overheads.

Dotted around the landscape are trees, radar scanners which relay views for your short range scanner map, houses, and also the meanies who are invading the planet and sowing a deadly red virus over the once pleasant green countryside. Shades of HG Wells and *War of the Worlds* here, but even if the scenario is not going to win prizes for imagination, Braben's attention to detail and perfection of the animation of landscape, airborne objects, and general debris wafting around more than makes amends.

While you seek out the virus-spreaders you have to watch out for scout ships and fighters. Dog-fights can become most acrobatic, especially with three enemy fighters on your tale spewing out a seemingly endless supply of ammo!

Ship control is via the mouse, as on *Lander*, but the central mouse button now releases a close-vicinity smart bomb rather than provide an intermediate thrust level. Control needs some getting used to. Braben has made the two-dimensional mouse motion provide a pseudo-three-dimensional effect on the hover-plane. Hovering a safe distance above the ground, try moving the mouse perfectly straight to the left or right and the ship will turn and dive or climb in altutude.



● *Zarch* by David Braben utilises the graphic capabilities of the Archimedes brilliantly.



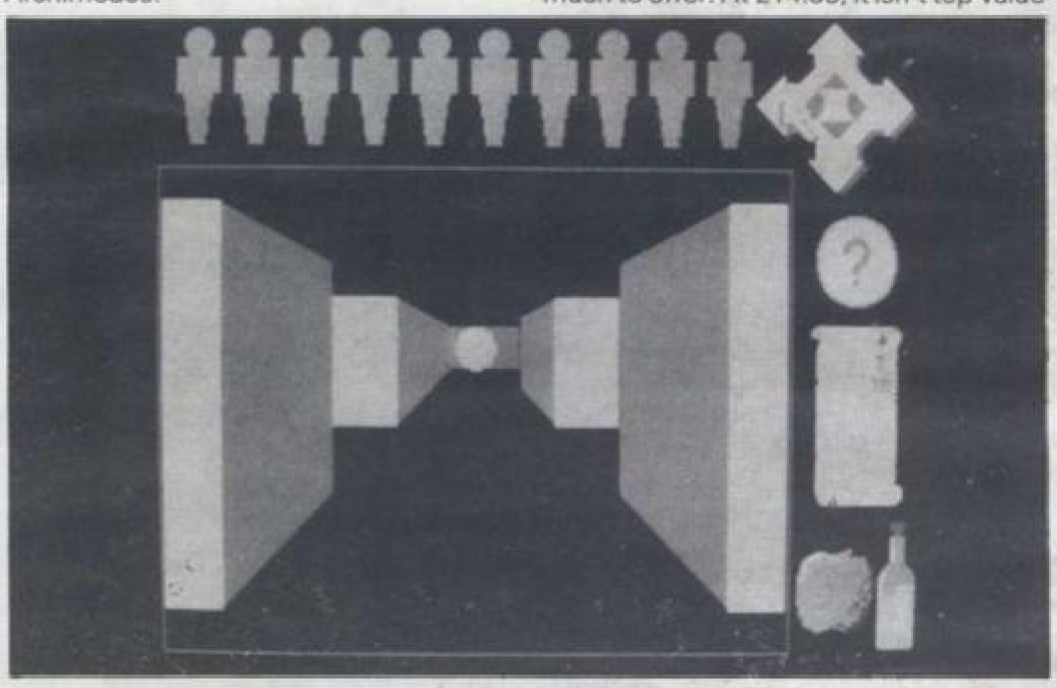
Personally I could spend most of the gameplay time simply practising low level flying. Once mastered, it is quite exhilirating as you race over the tree-tops. tops.

There has to be something wrong somewhere surely, and indeed there is. The Archimedes may have a six octave, eight stereo channel, full waveform sound capability, but precious little of this is evident in Zarch. Either Braben was unable to spend enough time going beyond the modest pings and zaps Zarch does offer or the graphic processing overhead precluded any more ambitious sounds. The eight sound channels need to be driven very hard by the processor, thus using up a sizeable chunk of processor bandwidth. The true answer to this disappointment will be revealed in games to come.

Back down to earth, Braben modestly claims that Lander and Zarch were both completed in rather a hurry, and can be regarded as the product of a break from working on *Elite* 2 . . . let us hope we are not simply witnessing the brilliance of Braben alone in Zarch; there has to be a bright future for games on the Archimedes.

"Several companies are promising business packages for the Archimedes."





● **Left: *Minotaur* is a 3-D maze game for the Archie.**

Minotaur

The only other game currently available for the Archie is rather modest by comparison. *Minotaur* comes from those afficionados of Ancient Greece at Minerva Systems (nearly everything they produce has a name with Greek historical overtones). The game is a competent version of that old favourite, the 3D Maze. The player wanders around a maze with a three-dimensional perspective view ahead and uses the mouse to point at forward/back/left/right arrows in order to command progress.

The aim is to save ten trapped humanoids from the deadly Minotaur patrolling the maze corridors. At the bottom right corner of the screen are an apple and a bottle of vino – both symbolic of how close you are to starving or thirsting to death. Luckily, these commodities can be replenished, by chance, at certain points around the maze.

Despite the game's simplicity, it can prove quite addictive, but though enhanced by the Archie's superior range of colours compared to a Beeb maze game, Minotaur does not have all that much to offer. At £14.95, it isn't top-value either, and once again sound is virtually absent. The only thing which redeems Minotaur is that most of the game appears to be written in Basic. You wouldn't have thought THAT without hacking the code! The reality of good quality arcade games written in Basic is getting nearer.

Languages

If languages are your great pleasure in life, then Acorn should keep you happy with its official versions of ANSI C, ISO Pascal, and Fortran 77. These are the real thing, proper compilers for professional use – not the lily-livered interpreted intermediate code jobs Model B users have had to put up with until now. Logo, Cambridge Lisp, Prolog and perhaps Modula 2 will be available soon. Acorn appears to be pricing most of this set of languages at around £60. *Little Smalltalk* is also available now in shareware form from Smalltalk Express.

Communications

This is an area where the Archimedes is currently seriously lacking. So far, there has not been any native Archimedes comms package, although some are promised. BBC Soft is working on a completely revamped version of *Modem Master*, hopefully using the desktop – and incidentally not using the Archie's emulated mode 7 teletext screen for Prestel.

Beebug is completely re-writing its *Command* package. Beebug says it is hoped to make it compatible with practically all the commonly used comms standards and protocols from YMODEM to Minitel. Beebug is also close to releasing an internal modem podule for the Archie.

A slow start in the comms department, but bright signs are there.

Business packages

Several companies are promising business packages for the Archimedes, but the only native package so far is *Logistix* from Grafox. It is being marketed by Acornsoft and is one of the first C-based business programs to be ported to the Archimedes. Logistix offers a Lotus 1-2-3-compatible spreadsheet, database and graph/chart modules. Unfortunately Logistix does not use the desktop manager, so you might as well be using an ordinary IBM PC.

Minerva has successful ported Deltabase to the Archimedes, (see December *YC*), but most of that is written in Basic, communicating with the machine via low-level drivers.

More exotic data-management offerings from Minerva on the horizon.

BBC Emulator

Not to be forgotten is that mose useful of utilities supplied with all Archies, the BBC 6502 Emulator (or 65Arthur as it is referred to on the Welcome disk). Acorn has de-ROM protected its *View* range of word-processor, spread-sheet, graph/chart, spell-check, and spreadsheet calc ROM images for use under the emulator.

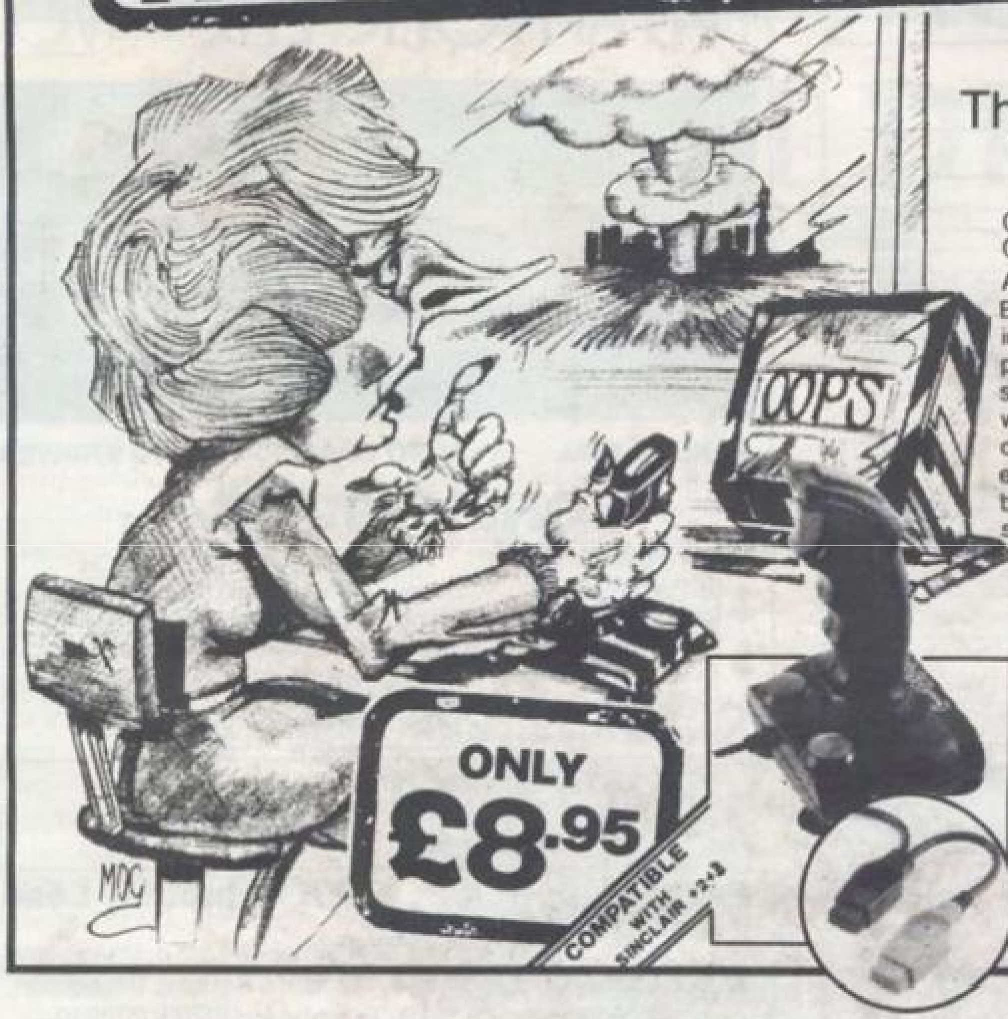
Computer Concepts has totally revised its Inter-series range of ROMs for use under the emulator, with the exception of *Inter-Base*. These will be released on chip

These will be released on chip only; there will be some delay before the ROM-podule and backplane design are put into final production.

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FRONT DESK

New look for Portex Organiser

Showerings Business Systems has launched a new range of its Filofax-compatible product, *Portex*. It is a personal management software program which comprises a perpetual diary, an address database, a full-featured word processor, a spelling checker and a mail-merge facility. The new versions all have enhanced software and souped-up packaging. Prices start at £86.50 plus VAT for the software only and rise to £129 plus VAT for the version with the leather binder.

Showerings is comtemplating an ST version of Portex. At present it is only available on the PC.



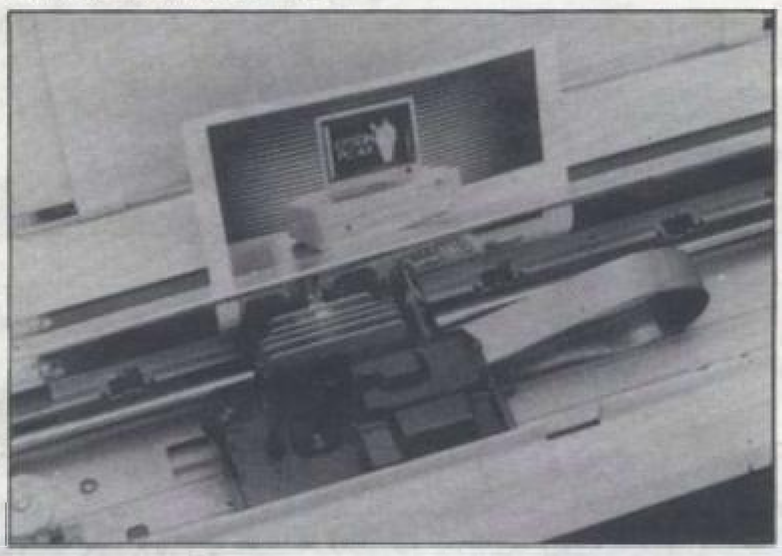
● **Francis Showering with his *Portex* package.**

Computer paper turns green

Readers with an ecological bent may be interested in a company called Conkers which produces computer listing paper which is entirely re-cycled. Enormous strides have been made in the re-cycled paper industry in the last year or two and quality is now as good as that taken from virgin sources.

Besides the environmental considerations, another benefit of using the re-cycled paper is lack of wear on the customer's pocket. A box of 1,000 one-part ruled sheets, for instance, costs about £5, depending on quantities ordered. For further details, ring Rainham 23610.

● **The Epson image scanner, available for less than £200.**



Epson goes to work on its image

An image scanner from Epson is being released for a price of slightly less than £200 if you are willing to forget about VAT. It is being made available as an option on four printers which the company makes – the EX800/EX1000 and the LQ2500/LQ2500+.

The scanning software is bundled with the Epson Image Scanner and is compatible with all IBM PC-compatible machines. Scanning speeds are 25ips. on the EX printers for which the equipment will cost £180 excluding VAT and 27ips. on the LQ printers, for which an outlay of £195 is required.

Epson can be reached on 01-902 8892.

Faithful servant for Amstrad PCW

Jeeves is a desk-top program from Kempston for the Amstrad PCW, including the new 9512. Using a WIMP system, several accessories can be accessed, including disc file management, disc operations, a four-function 14-digit calculator, a digital clock, a calendar and a phonebook. *Jeeves* is available together with the Kempston mouse at £79.95 or on its own for £29.95. The relevant telephone number is 0908 690018.

Also on the PCW software front, Rational Solutions Ltd. has announced *At Last Plus*, an updated version of *At Last*, also known as *The Database Manager*. The capacity of the program is for 32,000 records or 4MB per file.

One of the improvements is that unused data space is not saved to disc, thus creating considerably more disc space for names and addresses. Listing parameters can now be re-used for successive listings and selection conditions can be used when browsing or searching for individual records. A new manual designed to make matters easier for beginners completes the revamp.

Should you own a copy of the original At Last program, the front page of your old manual, your serial number and a cheque fo £19.95 sent to Rational Solutions Ltd, 9 Rosehill Road, London SW18 2NY will secure an upgrade. First-time users pay £39.95. The telephone number is 01-874 6244.

A dog of a printer stand

With a logo of a belligerent looking bulldog standing on top of a Union Jack, a Leicestershire company seems proud to proclaim the fact that its printer stand is British-made.

The Dot Matrix Printer Stand features a one-piece black ash wood-grain top, lightweight, rugged, welded, tubular steel frames and is finished in matching epoxy black. The manufacturer claims that the one-size top design is suitable for virtually every 80- or 132-column rear feed printer and is complete with paper catcher and feed baskets as standard.

The printer is guaranted for one year and costs £69 plus VAT. Telephone Peter Ward on 0455 44913 for further details.

● **The Bulldog Dot-Matrix Printer Stand.**



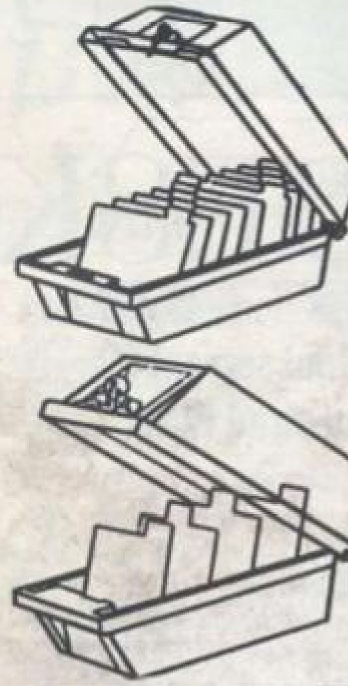
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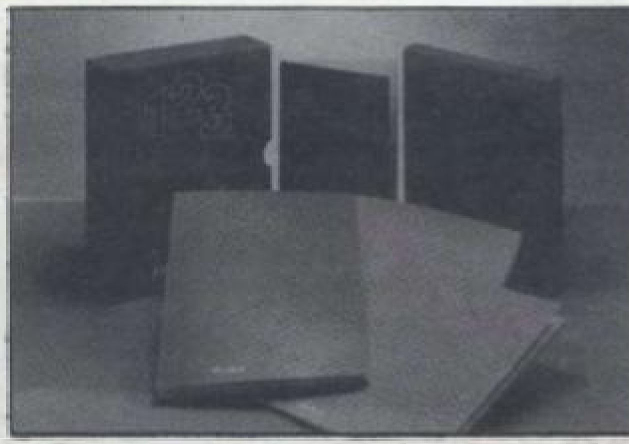
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Shareware aids



● Lotus started learning to count, 1 2 3.

The price of a budget IBM-compatible PC has fallen to the point where it has become an almost irresistible choice for small business and home use. In many cases, the deciding factor is the availability of a huge range of software but, ironically, one of the disadvantages of the PC is the premium prices PC business software traditionally has commanded. This includes the vital spreadsheet and word processor virtually any serious user needs – the typical price of a budget spreadsheet for the PC is between £70 and £100.

Fortunately there is a way to circumvent the problem. You can obtain a spreadsheet or virtually any other kind of business software at reasonable cost through a try-before-you-pay scheme known as shareware. Once you are sure the package runs on your hardware and does what you require, you register and pay the full price either direct to the software house or because the original authors are often American via their U.K. agents. Once you have registered, you will receive a proper manual and notification of upgrades when they become available.

Two of the best shareware spreadsheets available in the U.K. are Jim Button's *PC-Calc* and the Trius *Lotus 1-2-3* clone, *As-Easy-As*. Both represent exceptional value. The cost of registration for As-Easy-As is £26. PC-Calc is a little dearer at £41.

To some extent, choosing between the two packages is a matter of deciding whether you want to learn and use a 1-2-3-compatible spreadsheet or not. If you are already using 1-2-3 at work the choice may well be a foregone conclusion. As-Easy-As will read your 1-2-3 worksheets whether you use Release 1 or Release 2; PC-Calc will not read 1-2-3 files.

If you are not already a Lotus user and do not need to exchange data with Lotus users, you have a more open choice. It still might be a good idea to become familiar with 1-2-3 because it is the industry standard. Again, if you plan to produce graphs, As-Easy-As would be a good idea. The PC-Calc built-in bar graph format is rudimentary by comparison.

On the other hand, PC-Calc is a powerful spreadhseet in its own right. It offers a number of features Lotus 1-2-3 and Lotus clones do not. If you are starting from scratch you may be swayed by the fact that Jim Button's Buttonware range of shareware includes most of the types of package you are likely to need. Among the packages are a business graphics package, *PC-Graph*, and a database manager, *PC-File +*. Also available is a word processor, *PC-Type +*, and a comms package, *PC-Dial*. By choosing those programs you could equip yourself with a suite of business software at moderate cost.

The Buttonware packages work together very well, unlike a software library made up of commercial packages which might compel you to carry-out file conversions to share data between programs. PC-Calc can read PC-File databases. PC-Graph can produce graphs of data held in PC-Calc worksheets. This goes a long way to compensate for the PC-Calc simple character-based bar graphs.

By default, PC-Calc is set up with a matrix of 256 rows by 64 columns but you can alter that according to your requirements. The maximum number of cells PC-Calc can address is 16,384, so if you reduced the number of columns in use to 10 you would have 1,638 rows available.

In addition to the usual mathematical and statistical functions, there are financial functions for amortising loans and discounting future cashflows. The look-up function allows look-up tables – for example tables of interest or commission rates – to be used in spreadsheet calculations. Up to 12 keystroke macros can be defined at a time. They are not stored in the worksheet, like Lotus macros, but in separate .PRO files which also hold configuration parameters.

As-Easy-As is based on 1-2-3 Release 1. The 1,024 x 256-column matrix is smaller than the 8,192 x 256 of Lotus 1-2-3 Release 2 but within those limits As-Easy-As can read and write worksheets and use them providing they do not make use of new commands or functions not supported by As-Easy-As.

Lotus users will soon feel at home with As-Easy-As but the program is not an exact clone. The user interface is slightly different, with a vertical pop-up menu box replacing the standard Lotus horizontal menu panels. Diehard 1-2-3 users can opt for Lotus-style menus but the As-Easy-As alternative has its advantages. Because the 1-2-3 menu structure is complex, it is easy to lose your way. The As-Easy-As menu box lists all your preceding menu choices since the forward slash menu key was last pressed.

Some commands are different; in 1-2-3 you enter /QY (Quit, Yes) to finish work and return to DOS. In As-Easy-As you enter /EY (Exit, Yes). Some options are not available; for example the natural, row-wise and column-wise options and the iteration command on the /Worksheet, Global, Recalc menu are all missing. Some commands not in 1-2-3 Release 1 which were added in Release 2 are implemented in As-Easy-As; other options are present but are invoked in a different way.

Titles:
As-Easy-As
PC-Calc
Prices:
£26 plus VAT
£41 plus VAT
Publisher:
Shareware Marketing

All in all, As-Easy-As is an exceptional bargain. It offers a good degree of Lotus compatibility, with useful enhancements. Unlike 1-2-3, the program is not copy-protected; you are encouraged to try the product before spending money to register as a user. As an inexpensive introduction to the world's best-selling spreadsheet, As-Easy-As is unbeatable. It costs less than half the price of any other Lotus clone and one tenth of the price of 1-2-3.

PC-Calc is also worth examination. It is not Lotus-compatible but the external look-up links which can be established between PC-Calc worksheets and with PC-File databases put the program well ahead of many of its commercial rivals for complex three-dimensional modelling.

Evaluation copies of shareware products are available from Bulletin boards and user groups. Some of the organisations able to supply copies of shareware products are:

Advantage	0844 52075
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Title: **Citizen LSP-100**	Publisher: **Citizen (Europe) Ltd**	**4/10 Cowley Road, Uxbridge, Middlesex UB8 2XW**
Price: **£249.00**	Address: **Citizen (Europe) Ltd**	Telephone: **0895 72621**

According to the cliché, Victorian parents believed that children should be seen and not heard. My views on printers are rather similar. I would prefer a reliable printer which does its work with the minimum of fuss and noise but at the same time allows a degree of flexibility combined with ease of use.

That last phrase sounds uncomfortably like an extract from a PR release, so let's get the Citizen LSP-100 out of its box and discover what you get for your £249 plus VAT. In the box is the printer itself, a manual, the ribbon cartridge, a tractor feed unit designed for continuous stationery and a tray for inserting single sheets of paper. The manual, by the way, is excellent – in my opinion Citizen produces better manuals than any other printer manufacturer in terms of providing lucid explanations and clear illustrations.

The LSP-100 is a nine-pin dot-matrix printer. In other words, each character is a matrix of dots printed vertically by a printhead consisting of a column of nine pins. This is not exactly state-of-the-art as a 24-pin printer will produce much better print quality; the inevitable snag is that you'll have to pay much more for a 24-pin printer. In terms of competitive pricing, the LSP-100 looks good and compares favourably with the comparable offering from Epson which would cost you £30 more.

The LSP-100 is quite small and should fit into whatever space you assign the printer; to use the modish but silly expression, it has a small footprint. Since a printer is likely to be both moved and bashed about more than other hardware peripherals it is reassuring to find that the LSP-100 is robust and solidly constructed. It is also light in weight, making it very portable. Portability is very important in my view: in the world of business computers there is a lot of talk about networks at the moment but my response is: "Give me a handful of floppy disks and a lightweight, flexible, easy-to-use printer any day."

RIBBON

The ribbon cartridge is easy to install. This is a concise way of saying that you can set up the LSP-100 and still keep your fingers intact: they do not become covered in ink and/or trapped in parts you never knew existed. Citizen claims that the ribbon will print two million characters before being replaced – I did not have my machine-readable copy of *War and Peace* to hand so it was difficult to test this claim. The printhead itself, it is claimed, will last for 100 million characters (or the complete works of Tolstoy, Dostoevsky and one more Russian novelist of your choice).

The LSP-100 has a Centronics to parallel interface as standard although serial, Apple IIe and Commodore interfaces are available as an option. Emulation is predictable: you can configure the LSP-100 as an Epson FX or IBM printer. The Epson emulation is especially well thought-out because the LSP-100 offers three combinations of printer functions within this mode.

Emulation, of course, means the process of telling your software what kind of printer you are using; most software includes some kind of configuration program which includes a menu of supported printers from which you choose the appropriate one. Changing the emulation means pulling out the interface board and changing DIP switches: this is easy even if it goes against the trend which is



now to mount DIP switches in a more accessible position on the outside of the printer. The LSP-100 approach has the advantage that the DIP switch settings are unlikely to be altered without your knowledge or consent by any malefactors who haunt your office or your home.

The Epson and IBM emulations are probably sufficient to meet your requirements since any respectable software product will include provision for these emulations. In addition, the manual lists many Basic routines which could be used to control output and, if you are feeling adventurous, you could even design and save your own printer characters. So if you're completely whacky you could design your own alphabet, invent your own language, create your own culture and carry your LSP-100 all the way to the lunatic asylum: it's amazing what you can do with a good printer.

More seriously, you control the operations of the LSP-100 via the control panel on the front of the printer. The control panel has three lights to indicate power on, paper out and ready to print and three panels which are labelled On Line, LF and FF. LF stands for line feed and FF for form feed. The line feed facility is implemented so clumsily on some printers that it is not possible to advance the paper by lines with any accuracy but the line feed panel functions well on the LSP-100.

These three panels double up their functions and so allow you to select the desired typestyle. The LSP-100 offers a variety of typestyles including Pica as standard, correspondence quality, italic, boldface, expanded, compressed: in fact everything we have come to expect from a modern printer. Also worthy of comment is the fact that the LSP-100 has built-in character sets for some 11 countries which will allow you to generate characters with accents but without tears. You can also generate a range of graphics characters by using pre-defined block and line graphics characters.

SPEED

As regards speed, the LSP-100 can attain a maximum speed of 175 characters per second. More useful information is that in near-letter quality (NLQ) mode the printer functions at 40 cps. This is a respectable if not outstanding performance. My only disappointment is that the printer buffer is slightly stingy 4K. The idea of a buffer is that the printer can send data to the printer which can temporarily store data before printing. The bigger the buffer, the quicker the computer thinks it has finished its printing job and will let you do something else. The aim is to free the computer from boring tasks like controlling the printer and allow it to do more useful work, thus boosting your productivity.

As noted, the printer supports both single-sheet and continuous stationery feed. If you want to use continuous stationery, you can choose to feed the paper either from the rear or the bottom of the printer. This is further confirmation of the flexibility which Citizen has built into the printer.

The LSP-100 is satisfactorily quiet and, yes, it is possible to do some printing and have a telephone conversation at the same time. The printer's hood is neatly designed and serves as a noise suppressor, dust cover and paper cutter.

CONTROL PROGRAM

Finally if you're addicted like me to self-test routines you'll be pleased to know that the LSP-100 has two such routines. The first prints out very prettily all the standard characters as well as accents and graphics characters. The second is admittedly less useful and identifies the version of the control program in use. A technical feature which will appeal to programmers is the hex dump facility; this prints the hexadecimal value of every code and the corresponding characters or control codes. This feature is designed to assist in the process of debugging programs.

The Citizen LSP-100 looks like a printer which has been built to be durable. It cannot be considered to offer state-of-the-art performance but that is not its aim. Instead, it provides useful features with a good degree of flexibility and is easy to use. It offers value for money and I would have no hesitation in recommending the printer if it is within your budget.



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Master of Arts

Title: MasterScan and MasterPaint
Price: £69.95 and £19.95, or £79.95 combined package
Machine: Amstrad PCW 8256/8512
Publisher: Database Software, 68 Chester Road, Hazel Grove, Stockport, Cheshire SK7 5NY

MasterScan and *MasterPaint* are two separate products, but they can also be bought in one package and complement each other well, so it would seem to make sense to review them together. Note that they are *not* designed to work with the PCW 9512.

MasterScan comprises a program disk and a scanning device, complete with interface that plugs into the back of the PCW monitor. With the scanner plugged in and the software loaded, you are ready to go. The idea behind the scanner is that you can insert almost any sheet of paper up to A4 size into the PCW printer and have the scanner read this and convert it into an image on your PCW screen, the reverse of printing an image out, to oversimplify the idea. It is a smart idea which has been implemented for several hundred pounds on costlier computers, but since when did that kind of price apply to the PCW user?



● **Left: Pat Cash half-volleying his way on to the Amstrad PCW.**

The scanner clicks on to the head of your printer once the ribbon has been removed, and it contains a tiny light source which moves back and forth over the paper in the printer and senses the difference between dark and light parts. For shades between absolute black and absolute white, the program contains an algorithm which attempts to compute the density of the image and convert that to an equivalent density of pixels on the screen.

SIMPLICITY

The device is simplicity itself to use. The MasterScan program presents you with a menu, and with the paper in the printer you select the **SCAN** option and the printer head starts zipping back and forth. Perhaps 'zipping' is an exaggeration as it does take several minutes to scan a full A4 page. If you want to scan smaller images, you'll have to attach them to A4 sheets, but you can press **STOP** to halt the scanning at any point and resume control yourself. Sometimes the scanner will stop of its own accord in mid-operation, which is a nuisance, but this is caused by a problem with the paper sensor mechanism in the printer. The cure for it is to insert a second piece of paper behind the first in order to trigger the mechanism, or more simply to switch off and start again with your original sheet of paper attached to a thicker sheet.

Once you've trapped your image on the screen, what do you do with it? Within MasterScan itself, not a lot, although you can set the controls before scanning to provide you with anything from a half-size to a 6x magnification of the image you're scanning. The program rather strangely does not contain a print option but, provided you remember to remove the scanner and replace the ribbon, you can make a screen dump of the image. You really need to use MasterScan in conjunction with another program, and this is where it comes into its own.

NAMES

When saving scanned images to disk, you can name them with the appropriate file extension for use in any of several other programs, as each has its own way of recognising a graphics image. Suppose you've scanned an image from *The Daily Bonk*, you could save this as **BONK,PCP** to allow it to be loaded in MasterPaint or back into MasterScan, as **BONK,GRF** to load it into The Desktop Publisher or as **BONK,G** to load it into Fleet Street Editor Plus. Newsdesk International doesn't have a standard file extension, so save it as **BONK,ING** or whatever you like.

Not only can you then manipulate the scanned image in the art/graphics section of your favourite DTP program (add speech bubbles or draw moustaches on Mrs Thatcher and other intellectual pursuits), you can use MasterScan as a file conversion program. I prepared a headline using one of my favourite fonts in Newsdesk International, saved it as **FONT,PCP**, loaded it into MasterScan and resaved it as **FONT,G** and then loaded it into Fleet Street Editor Plus and used it there. Although Fleet Street Editor Plus has a 'graphics preparation' option which in theory allows you to load in images from other programs, I've found that this doesn't always work satisfactorily but it did with the Newsdesk font.

FAX

You could use MasterScan as a primitive fax machine if you wanted to send a copy of a document via a modem, though it would have to be to another PCW-owner.

The program doesn't scan small text very well, nor does it scan glossy photographs, but for scanning images and headlines from newspapers and magazines, and for its file-conversion option, I'd have thought it was an essential buy for anyone doing serious DTP work on their PCW.

For an extra £10 you can add a copy of MasterPaint as well. This is an art package that bears resemblances to the one in Database's Desktop Publisher, but with some extras and some very slight omissions. It works with an AMX, Kepston or Electric Studio mouse and is a proper WIMP program such as you would find on the Atari ST or Macintosh, and as such it is a joy to use.

The Windows, Icons, Menus and Pointers way of working is fast and simple as you switch instantly from pencil to brush strokes, from paint spray to eraser, from lines to circles and boxes. MasterPaint lacks options like rays and line-lock, but includes zooming, mirroring, inverting, cutting and copying and most other features you would want to see. Its main virtue is its simplicity . . . very user-friendly, as they say. Maybe not worth spending £19.95 for on its own, if you already have an art or DTP package, but I can't imagine anyone buying MasterScan and not wanting to add this neat little program to it for a tenner (much less if you shop around the mail order ads).

Database has produced some interesting software of late, with *Mini-Office* and *The Desktop Publisher*. MasterScan/MasterPaint is another bargain addition to that enterprising range.

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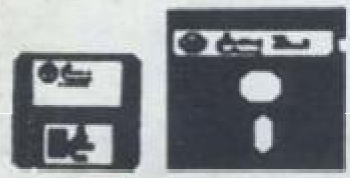
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Typeset by Time Graphics LTD
Printed by Cradley Print PLC

Distributed by Quadrant Publishing Services, Quadrant House, Surrey SM2 5AS. Telephone 01-661 3239.

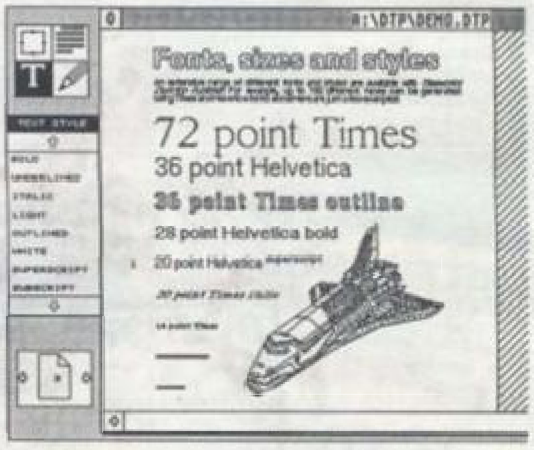
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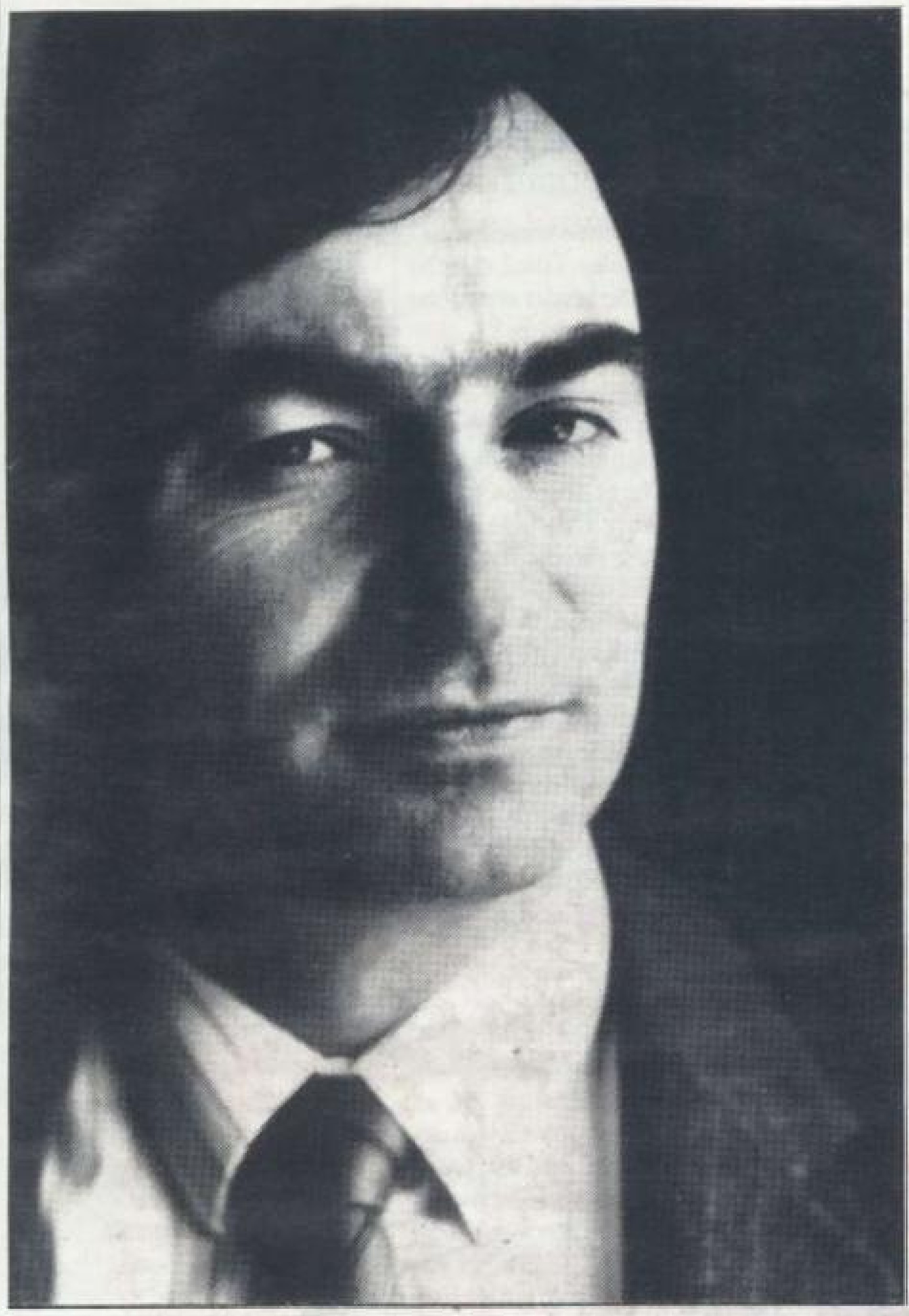
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● Left: Gleadow "The name is no sillier than Compaq."

Atari takes Comdex by storm

The ST became the second most powerful Atari machine in November when the company took the wraps off its transputer-based Abaq. The unveiling was at Comdex Las Vegas, the biggest micro show in the U.S., a venue which draws attendance from all over the world. To be on the safe side Atari launched two more PCs, a local area network and genlock for the ST while at the same time previewing a 386-based PC for full launch at next year's Hanover Fair.

The flood of launches was described by Atari president Sam Tramiel as putting an end to the company's "period of constipation." Jack Lang, chairman of Perihelion, the British company developing the software for Abaq, referred less modestly to the machine as "a tenth of a Cray" – Cray makes the most powerful mainframes in the world and pioneered the 'one per country' concept.

Lang's aim with the Abaq – Bob Gleadow of Atari U.K. comments that the name is no sillier than Compaq – is to turn the market to parallel processing. The machine's T800 transputer runs at 10 million instructions per second and allows for a further three transputers to be plugged into it.

When Atari launched the ST, 256K seemed a great deal but this time the Compaq 386 effort takes us on to Atari's, the launch of which at Hanover will round out its PC range.

Prototypes were being shown at Las Vegas and Atari proposes to issue it in two versions, with chips running at 16 and 20MHz respectively. The 20MHz 80386 is reasonably state of the art so far as the Intel range of processors is concerned but by the spring it will be relatively commonplace, so do not be surprised if Atari does not bother to ship the slower version – shipping dates are second quarter, so expect them to be air-freighted in on July, 1988.

One of the other PCs, the PC2, will be familiar to Atari watchers but should be shipping by the time you read this. The U.K. price will be £499 and for that you get an Amstrad-bashing 8088-based 512K machine with built-in Enhanced Graphics Adaptor and monitor.

The newer PC, the PC4, uses the 80286 chip – the one between the 8086/8 and the 80386 – and has the ability to use Video Graphics Array, the graphics standard which allows PC graphics to look anything other than awful against the ST.

The ST was something of a Cinderella at the Atari shown but features in a new strategic product, Moses Promiselan. This unfortunately-named effort is a local area network which will connect PCs, STs and Macintoshs on the same net – ST shall talk to PC?

Base memory is 4MB and by the time fully-working prototypes appear sometime next year this probably will not be sufficient either. To make life really interesting the developers propose to give the machine 1MB of RAM dedicated to the display and at Comdex the company was showing a spectacular graphics demonstration. According to Tramiel it will permit displays of "near photographic quality".

That gives a clue about what Atari proposes to do with the machine. The likes of the ST, Amiga and Macintosh are starting to be used in the audio and video industries, digitising analogue signals and then manipulating them, and that takes stacks of memory and processing power.

Similarly, the engineering and computer-aided design/computer-aided manufacturing industries need very powerful workstations and at present use products from the likes of Sun and Apollo which cost tens of thousands of pounds.

The latest entry in this field is Compaq, which proposes to use a PC based on the Intel 386 plus an add-on board to offer a graphics/engineering workstation for around £15,000. The Atari price? There is no definite information but you will not be laughed out of court if you suggest £3,000-£5,000.

Putting things straight

I have been wanting to make an audio input/output port for the ST for some time but have not had the time.

The reason I felt that I had to write to you is that your HELP! section is not very good. If people write to you it probably means that they do not understand something. In the October, 1987 edition there are some mistakes and some answers are skimmed over.

An ST owner wrote to ask what are boot discs, auto folders and TOS image files and, while I agree that the ST manuals assume that you already know how to use the ST before you read them, I feel your reply really led him up the garden path.

I have no discs called "DESKTOP"; the name of the disc seems to be ignored by everything on the ST – you cannot even change the name of the disc without re-formatting it. When you say that you must call the disc you have in drive A: "DESKTOP" if you want your accesories – e.g., control.acc, emulator.acc – to load when you switch on the ST, you are incorrect.

As you say, the "AUTO" folder is a folder to which you have given the name "AUTO". Any programs in this folder are run when the ST is switched on but before GEM has been installed. This has the effect that your auto programs cannot be GEM ones but is useful for such things as RAM discs and time-setting programs. Incidentally, there is a program called Autogem which allows you to run GEM applications automatically.

I usually refer to the disc containing .ACC files and AUTO folder which I have in drive A; when I switched on an ST as the "start-up disc" or, incorrectly, as the "boot discs". I repeat, this disc has no name.

I think that the term "boot disc" really refers to the days when GEM was not in ROM, so you needed a disc containing GEM called "system" in drive A: when you switched on the ST. The term "boot" is from "bootstrap", from "picking yourself up by your bootlaces". It means that, when the machine is switched on, it has a small ROM to enable it to do some very simple operations, like read from a disc. These simple operations are then used to read the operating system e.g., TOS and GEM on the ST, or Unix on a larger computer from disc. After the whole operating system has been loaded, the system can then be used. Since all the operating system on the ST is now held in ROM, the term would appear to be redundant, though I suppose it can refer to some of the games discs which have to be in drive A: when you switch on the ST and take over the whole system.

As a follow-on to the query about the "limited screen area" of the ST display, I think that the reason for the border round the edge of the display has its history in the old Atari 400 and 8900 which preceded the 600XL, 800XL and 130XE models which used TVs for their display. The assumption was that not every TV would be able to display the same-sized picture, so it would be an idea to waste the outer edges of the screen to ensure no TV clipped any of the real display.

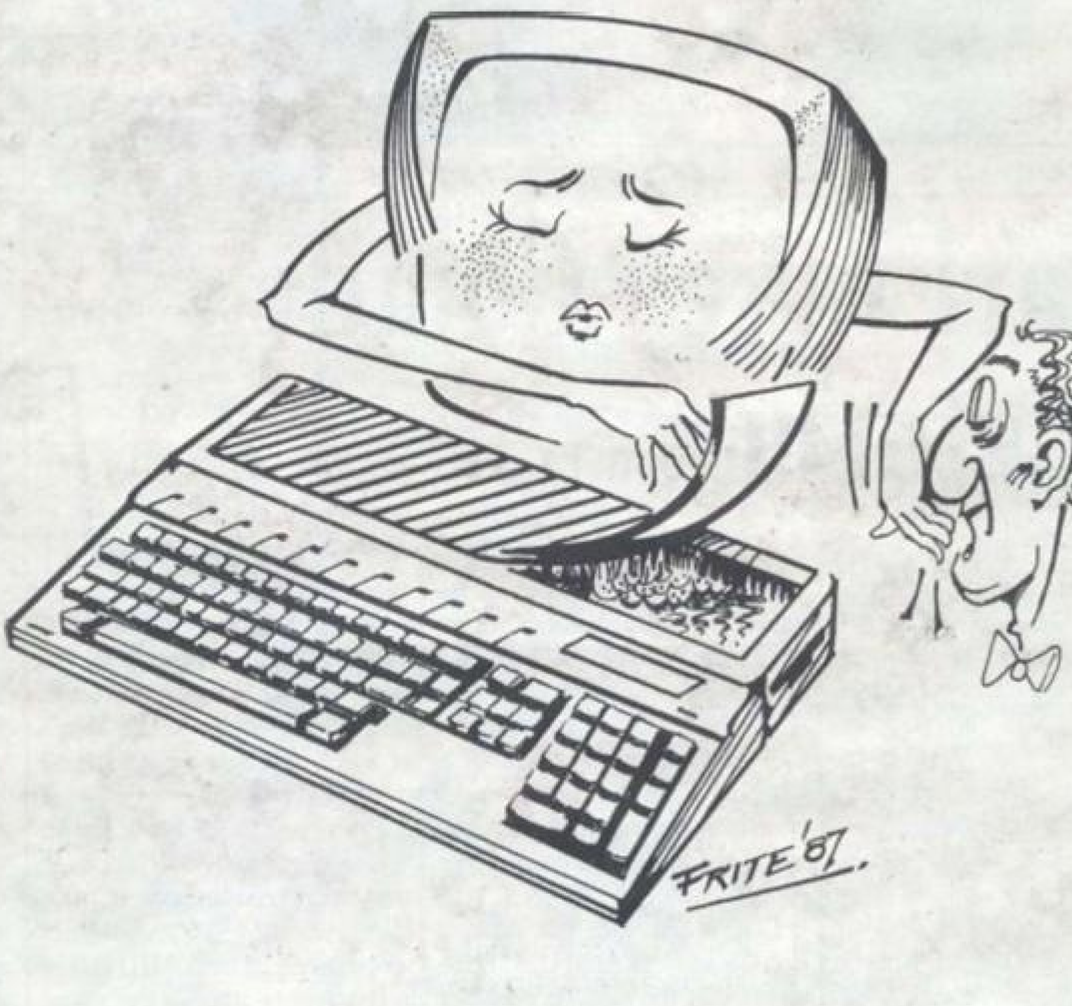
While I agree that Atari Basic is terrible I cannot agree that the advisable alternative way to programming the ST is to use 68000 assembler. Surely the best choice would be to use a low-level language like C – I like the Lattice development system – or a higher-level language like Pascal or Modular-2.

The advantage of using such languages is that the skills are portable – I can get any computer to say "hello" using C but not 68000 assembler – and they offer features, not even hinted at in Basic, to make your programs easier to write.

One point about using compiled languages is that, using floppies – two 1MB drives – they can take ages to compile, so it is advisable to have a RAM disc program – I have *Back-Pack* – to bring down the time to something reasonable.

Paul Rowlands,
Leeds.

● **No Peeking.**



We want your letters! If you have anything to say about the ST or ST Update, this is your opportunity. All contributions are gratefully received. Send your letters to ST Update, Greencoat House, Francis Street, London SW1P 1DG. Please enclose an SAE for a reply.

Moving on up

I am writing to tell you of my experience of upgrading my 520STFM to 1MB. At the PCW Show this year I bought the components from AS&T of Southend for £50. I am fortunate enough to work in a company with an electronics workshop and so was able to get my tame electronic engineer to use his equipment to fit the upgrade.

The first problem was removing the PCB from its protective shell. It entailed removing the screws from the base, lifting off the top, unplugging and removing the keyboard, removing the covers from the disc drive and the power supply, unplugging the power and data cables from the drive and removing it and unscrewing the power supply and removing that. The PCB in its shielding is isolated and can be removed from the lower part of the casing. The metal tabs holding the shielding together can then be twisted to allow the shielding to be separated.

The PCB should be revealed in its naked glory. Along the bottom edge are 16 chips with 16 capacitors between them. Above that row of chips are spaces for another row of chips and capacitors. The pin holes are, unfortunately, filled with solder. These holes all have to be de-soldered with a solder sucker. This job can be very time-consuming and is best accomplished with two people, one to hold the soldering iron on one side of the PCB and the other using the solder sucker on the other side. One of the holes will contain one of the pins of a very large capacitor. This should be removed.

Once all the holes have been de-soldered the chips and capacitors can be soldered into place, making sure that the chips are the same way round as the chips in the row below. You should then check very carefully for solder bridges between pins or dry joints – normally dull-looking instead of shiny.

Once you are satisfied with your work, put all the pieces together and switch on. If you do not get your normal boot situation, switch off immediately. Then go back and check all your soldering and make sure that the RAM chips are the correct way.

I understand that some of the 5420STFM PCBs are rejects from the 1040 production line as they have faulty lines on the board for the extra 520K of RAM. If this is the case with your board I can only suggest that you use one of the commercial upgrades available.

On the subject of commercial upgrades I must say that for anybody not 100 percent certain of what they are doing a commercial upgrade is the best bet. My tame electronics engineer says that the components would cost £52. Upgrades advertised are not more than that and normally have a guarantee.

**Frank Hollis,
Harlow, Essex.**

Colourless appeal

I bought the last two issues and then bought a 1040 ST with mono monitor. I am a lecturer in computer studies at a college of further education and must use PCs at work. I had hoped to work with the ST at home and use PC Ditto to work on files which could then be read by the PCs, XTs, PS-2s at work. Little did I realise the ST has presented me with a bigger problem and will require the payment of an even bigger bill for a colour monitor before I can use it for work. I thought I had seen the last of this foolish incompatibility when I sold my Commodore 128D.

I like the ST. As a PC-DOS user I can appreciate the GEM, having to deal with DOS all day. I think the CP/M emulator is good. My wife can relate to GEM where she could not to DOS but this monitor business really is a disappointment.

In view of the number of suppliers pushing mono monitors I think you would be serving prospective buyers like me if you pointed out the problem clearly instead of hinting at it vaguely by publishing lists of games which perform well on a mono screen.

I keep a QL, an ancient Egyptian Exidy Sorceror and a ZX-81. As you will be aware they all have their quirks. None of them was so expensive as the ST but complete with free quirks.

I have written to the retailer, whom I hope will at least refund or swap the package but why do the software companies not think of us, the people who struggle to find a solution to our means?

**John Masterman,
Hartlepool.**

Editor's reply:

All your prayers have been answered. Robtek plans to have PC Ditto available in the shops by December. It will work on high resolution monitors.

Giving a hand

James Somen of Castle Bromwich was having difficulty loading NEO pictures with GFA Basic. I have done exactly that, so perhaps you required to find how Neochrome encodes the colour information. This involves PEEKing the first 128 bytes of the file. SETCOLOUR is then used to alter the pallette accordingly.

Somen wants to present pictures in a sequence. I have done this kind of thing and suggest he uses the SGET and SPUT commands. This is very easy; you just load your picture on to the screen, SGET a$, load second picture, SGET b$ and so on, then SPUT in GFA Basic. These seven commands in GFA Basic are very fast. You cannot fit many whole 32K screens up into smaller frames. I have written a program which animates Neochrome pictures in this way.

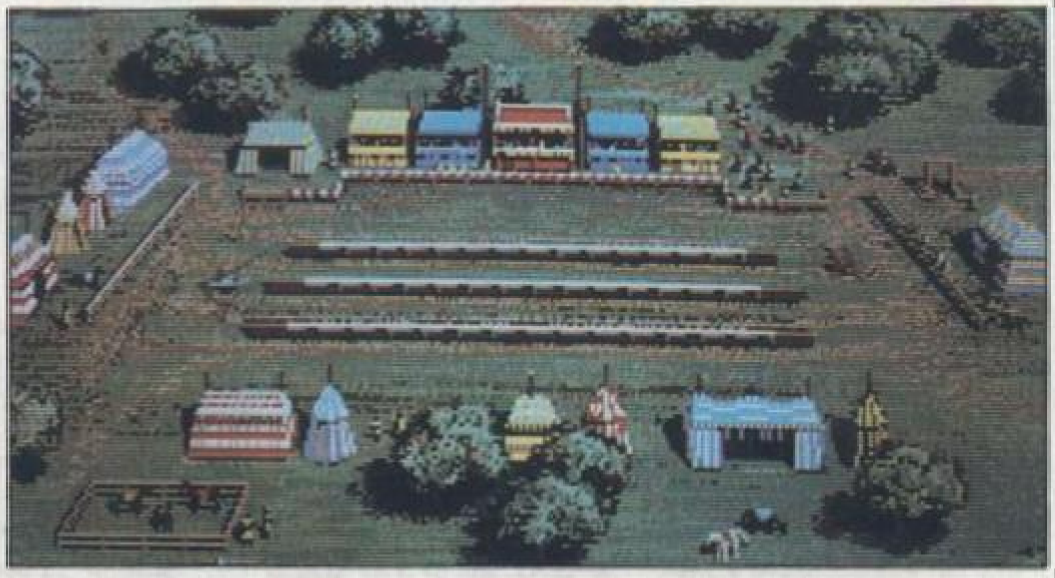
**J.McOwan,
Birmingham.**

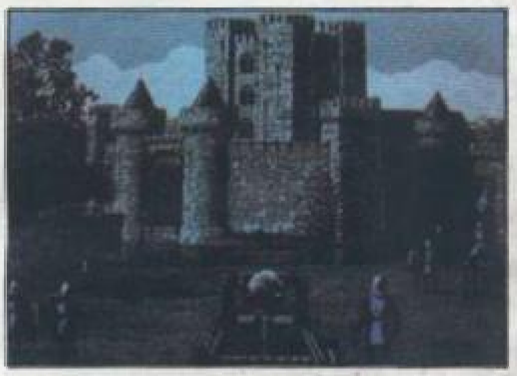
```
Rem ****** Loading NEO files with GFA Basic
****** Bload "monalisa.neo".Xbios(3)-128
Rem ****Get the colours right****
Count=0
For F=Xbios(3)-124 To Xbios(3)-93 Step 2
  Let Rgb$=Hex$(Dpeek(F))
  If Len(Rgb$)=1 Then
    Let Rgb$="00"+Rgb$
  Endif
  If Len(Rgb$)=2 Ther
    Let Rgb$="0"+Rgb$
  Endif
  Setcolor Count,Val(Mid$(Rgb$,1,1)),Val
(Mid$(Rgb$,2,1)),Val(Mid$(Rgb$,3,1))
   Inc Count
Next F
```

Defender of the Crown

Ask ST owners which Amiga Game they would most like to see converted and the answer would undoubtedly be *Defender of the Crown* from Mindscape and sold by Mirrorsoft. Defender is a medieval strategy in the U.K. adventure, as well as being the best of the series of Cinemaware products Mindscape produced.

Now it is available for the ST and, as hoped, Mindscape has done an excellent job of converting it. This interactive movie is set in the 12th century. King Richard has been assassinated and the Saxons and Normans are at each other's throats in the ensuing power struggle. You play a Saxon, one of four likely lads – Geoffrey Longsword, Wolfric the Wild, Cedric of Rotherwood and Wilfred of Ivanhoe. Each has his own rating for leadership, jousting and swordmanship, so choose the man best-suited for the style of game you will be playing.





When the game starts it is November, 1149 and England is divided into 18 territories. You sit comfortably in your castle but the peace does not last long. To win the game and gain the throne of England you must capture all the Norman castles, even if another Saxon is holding one at the time.

The most direct approach to Defender is to buy as large an army as possible and go on the rampage. Initially each area, home castles apart, is unoccupied. The first liberating army to plough through picks up all the vassals in the district, as well as bagging a monthly income of a handful of gold pieces for the castle coffers.

It is possible to move safely through Saxon territory, no matter who controls it, but as soon as you hit Norman turf you have to fight. If you run into an opposing army a battle starts and you are presented with tactical options. One of them, the catapult barrage, can wreak havoc if you have a number of them but it costs plenty of money to buy them in the first place.

Ordinary footpads cost only one gold piece, knights are more expensive at eight, catapults cost 15, but the most expensive item is a castle, at 20, to protect open territories.

What you should need for attacking castles is a catapult but on the early versions of the program, the defenders generously supply you with one and a supply of rocks, urns of Greek fire, and diseased meat to fling at and over the walls.

Sieging the castle incorporates one of the three main arcade elements, namely the firing of a catapult, which is much more difficult than on the Amiga version, though that was never too easy. The graphics for the castle under fire are nothing short of brilliant. They are virtually identical to the original and, on one of the scenes where a storm is raging in the background, even better because of the dark and rainswept appearance.

To do well on the field of battle it is a good idea to have a strong leadership rating but if your character lacks it but excels in jousting, a regular tournament is the answer. It costs five gold pieces to hold one but, as you can joust for fame or land, it can be very worthwhile, especially when you pick on someone who cannot handle a lance.

Once again, fabulous graphics for the stand of spectators and a rousing, if not particularly musical, fanfare and tune to accompany the event. After galloping to either end of the field, the jousters thunder towards each other, your target growing bigger and bigger in a reasonable attempt at 3D. When you hear a metallic clanking noise you must jab the left mouse button and if your lance is pointing at the middle of his shield he will be walloped from the saddle. More often than not I found myself staggering around the turf in a daze.

When funds run low, your armies have been massacred, and your character looks as if he has been dragged through a moat backwards, that is the time to go raiding. It involves selecting a few of your top men, nipping over the enemy's castle wall and trying to steal into the keep. Alas, the guards always hear you and pour out.

Using the left mouse button for thrust and the right for parry you involve yourself in Errol Flynn-style heroics. The fight takes place in a courtyard and inside the keep. Fastened to the outside wall a torch splutters pitifully in the cold, clear night, while indoors the lighting casts a large shadow on the far wall. Should you overcome the opposition the treasures of the keep are yours.

The raiding scene is also the basis for when a rescue is staged. The scummy Normans sporadically steal fine Saxon women and to save honour and, standing with your men, a rescue must be mounted. The procedure is the same as before, except that medieval sex is the prize when you make it to the castle inner sanctum. The reward for rescuing said wench is in the form of flimsy underwear and passionate embraces when she expresses her gratitude. It is this scene which warrants the adult entertainment tag.

Defender of the Crown is everything on the ST everyone hoped it would be. Two scenes have been cut, like seeing Robin Hood in Sherwood Forest, but they are fairly trivial and did not add much to the original game. With unbelievably good graphics, a few spot-sampled sound effects and all the charm of a Hollywood medieval epic, Defender of the Crown will be one of the hottest pieces of software this Christmas.

Mark Ulyatt.

PROGRAM:	**Defender of the Crown**
PRICE:	**£24.95**
SUPPLIER:	**Mirrosoft**

UPDATE RATING

GRAPHICS	25
SONICS:	19
GAMEPLAY:	23
V.F.M.:	23

90

Academy

On first appearances, the latest CRL product convinced me that it was a Spectrum emulator for the ST but it really is a program written – well, converted anyway – for the ST but not particularly well. The program to which I allude is *Academy*. Why CRL has skipped over *Tau Ceti*, when Academy is Tau Ceti 2 and produced the less-liked follow-up is difficult to fathom.



You are a student at the Galcorp Academy and to graduate you must complete 20 missions, grouped in five levels of four – just the kind of heavy metaphysical deal into which you can really get your teeth.

Before setting out on a mission it is a good idea to read the mission brief, not that you need to do so on the first one. Kill is the order of the day. Select a skimmer type, start the mission, and before you can say nuke 'em till they glow, nothing happens. Type-in LAUNCH, though, and all apathy breaks loose. An incredibly dull control panel offers a surprisingly small viewpoint.

Having seen what Rainbird and Psygnosis have done in the past there is no excuse for porting the display from the Spectrum. If you just sit around the bad guys will make a beeline for you. Solid spinning tops and door wedges, and other plain designs, race towards you, so start hammering the spacebar. Although you can increase and decrease there is no difference when you look from the viewpoint. The scenery, and we are talking about an empty plain, does not move. The lightning flashes are impressive but that is it as far as commendations go.

Driving your skimmer around – it handles like a golf ball on an ice rink – is an experience in boredom. There are a few other weapons systems besides your laser – like delay bombs, anti-missile missiles, missiles and flares – and there are items to investigate but the game is such a bore to play that it makes no difference.

What could have been a good ST game is nothing more than a Spectrum game on your favourite machine. The design and graphics are pathetic and the sound effects are no better. With the season of making merry upon us, I must report that here is something else which gobbles. Give it a miss.

Mark Ulyatt.

PROGRAM:	**Academy**
PRICE:	**£24.95**
SUPPLIER:	**CRL**

UPDATE RATING

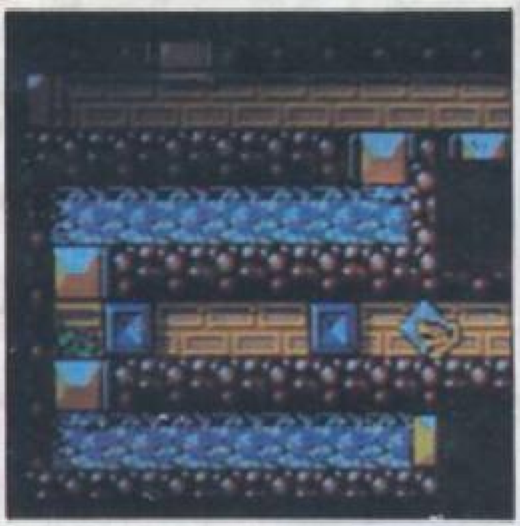
GRAPHICS	8	
SONICS:	10	
GAMEPLAY:	12	**37**
V.F.M.:	7	

Ranarama

The first Hewson effort on the ST, *Ranarama* is an arcade adventure-cum-maze game which includes many of the elements of *Gauntlet*. Embellished with most of the compulsory features of ST games – sampled sound effects, colourful title screen and detailed backgrounds – Ranarama remains a fairly uncomplicated game in which you guide a froglet, seen from above, through a series of chambers inhabited by nasties of varying strengths.

The plan is to collect power crystals and spells until you have sufficient energy to destroy the warlock on each level, then move through to the next set of chambers. Glyphs set into the floow allow you to destroy all the creatures in a chamber, reveal a map, transport to a new area or gain more spells. The last glyph also reveals pages of information about the monsters you will encounter, complete with portraits and horrifying sound effects, which have some resemblance to BBC sound effects records.

While the action in Ranarama is fast and furious and the overall polish is high, I cannot help feeling that the potential of the ST would be better served by producing a more original type of game.



PROGRAM:	**Ranarama**
PRICE:	**POA**
SUPPLIER:	**Hewson**

UPDATE RATING

GRAPHICS	15	
SONICS:	21	
GAMEPLAY:	13	**69**
V.F.M.:	20	

Airball

Airball is one of the best arcade games for the ST with its superb 3D graphics and jolly tunes. Now, after a short delay, there follows the Airball Construction Kit, enabling you to play the part of the evil wizard and create your own sprawling horror-filled mansions.

The construction kit permits you to start designing the rooms from scratch or to edit some of the rooms already on the disc. There are more than 300 components, from sculptured masonry, rocky towers, archways and cracked paving to pain-wracked faces, sneering warriors, ugly monsters and pouting maidens. You are given full control over the level on which to place the scenery and objects, how the rooms inter-connect and where the hazards and life-sustaining air pumps appear.

To avoid all kinds of problems later it is better to plan the rooms on graph paper before using the construction kit. Although starting completely from scratch may seem preferable than re-designing the rooms from the sample game supplied is not. Some of the larger sprites appear along the bottom of the edit screen with the top or bottom sliced off, which is not particularly useful.

Undoubtedly it may take some time but shorter games can be designed and implemented in two hours.

If you ever wanted to create your own professional arcade adventure games you should learn machine code. If you want to create variations on the best *Knight Lore*-type program for your ST, the construction Kit is just the thing.

PROGRAM:	**Airball**
PRICE:	**£14.95**
SUPPLIER:	**Microdeal**

UPDATE RATING

GRAPHICS	**24**	**83**
SONICS:	**19**	
GAMEPLAY:	**22**	
V.F.M.:	**18**	



Hunt for Red October

In Tom Clancy's *The Hunt for Red October*, you play Captain First Rank Marko Ramius, a latter-day Captain Nemo and skipper of the most advanced submarine in the world – the Red October of the title. Unfortunately, the submarine, and you, its commander, happen to be Russian. I say unfortunately as you have a potentially-fatal attraction to life in the West and so decide to defect.

The Soviets are, understandably, not too pleased when you tell them in an ill-considered tape message. They despatch a fleet – or should that be flotilla? – of ships and submarines in an attempt to recover or destroy the Red October at any cost to prevent the Americans getting their hands on it. The United States Navy is not one hundred percent convinced that your defection is entirely kosher. As if that were not enough, your crew, aside from a carefully-chosen core of officers, is not aware of all this drama and so you must also be careful not to give away all of your aims. Against this backdrop unfolds a well-executed submarine simulation.

Packaged with the game disc are a comprehensive step-by-step command manual, a full-colour A2 poster, a ship recognition chart and, rather puzzlingly and for extroverts only, a metal Crewmembers' badge. This slick presentation in continued on-screen, from the watercolour-effect title screen to the newspaper page detailing the Red October's untimely destruction.





● Above: periscope up sir!

● Left: Maps of area.

This presentation re-surfaces in such neat touches as the stylish hammer-and-sickle-shaped mouse pointer but the game grahics are functional rather than decorative. The periscope view, however, is very capable and can present realistic and detailed images of the outside world.

The action takes place on a reasonably-detailed map of the Atlantic, displayed as a sonar map to aid navigation with contours coloured unoriginally but effectively in ever-deepening shades of blue to indicate ever-deepening waters. *Roy Stead.*

Where the Hunt for Red October comes into its own, though, is with the command entry system. Ordering your fellow crewmen around is surprisingly simple, merely clicking on the speedometer to alter speed – you can fine-tune before executing the command – with depth and heading being affected similarly by the depth gauge and compass respectively, though digital readouts of all three are also displayed. More complex commands are accessed via well-drawn icons to the right of the main display window, four initial options to access the sonar room, engine room, weapons room or periscope breaking down into sub-menus of similarly well-drawn icons which permit you to alter the power source and many other aspects of the submarine's operation.

The Hunt for Red October has an excellent, user-friendly, speed-orientated command entry system – if marred by a slightly sluggish response and flickery pointer – and polished front-end to a complex and compelling game. It is one, however, for the serious strategist rather than the casual gamester. With the SAVE/LOAD game position options, single games could go on for weeks.

PROGRAM:	**The Hunt for Red October**
PRICE:	**£24.95**
SUPPLIER:	**Argus Press Software**

UPDATE RATING

GRAPHICS	**15**	**68**
SONICS:	**10**	
GAMEPLAY:	**20**	
V.F.M.:	**18**	

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Give me a beat

Mark Jenkins listens to the beat on Music Products for the ST.

Let us sit smugly reflecting for a moment on the fact that the ST is now undoubtedly the world's most popular music micro. This may only be because it is fitted with a Midi port and may be out of all relation to its total sales in the U.S. or the U.K. but the fact cannot be denied that music fairs the world over are now dominated by ST products.

U.K. import companies cannot keep pace with the flood of ST music products from the States. There are still many U.S. software lines unavailable in the U.K. and we will be giving information about some of them so that you can contact the companies direct for mail order details.

Some Stateside companies are getting their act together in the U.K. and one is Sonus, which just opened a U.K. office. It has been in the music software field for a few years, at first concentrating on the Commodore 64/128 and Apple II but more recently introducing some powerful ST software.

The Sonus range covers everything from sequencers to Midi event editors, sound editors and more exotic applications such as drum pattern librarians and is backed by an extensive selection of hardware.

Sonic Editor is a sound creation and editing package for the Ensoniq Mirage and the Sequential Prophet 2000, which gives graphic waveform displays and allows you to create loops and trim samples for the best possible results. You can set all available parameters, including filter and detune levels, and a joystick or paddles can be used to edit sounds. A library of useful basic waveforms is provided and they can be listed to create sounds in octaves and fifths. Sets of 78 sounds can be saved to disc and waveform displays can be printed-out.

Sonic Editor runs on the 520 or 1040, as does the *Masterpiece* sequencer. It is a professional-level package with 323 channels, event editing, Midi Song Pointers – to synchronise your sequencer in the middle of a song rather than having to start from the beginning every time you want to try an overdub – and, on the ST an optional *Super Score* package for music transcription.

We looked last month at the Masterpiece sequencer in detail and you can contact Sonus for a catalogue and price list at PO Box 18, Wokingham, Berkshire RG11 4BP, 0734 792699.

Distribution

One U.S. company which does not have U.K. distribution is Compu-Mates, which will follow in the footsteps of Sonus and start a U.K. operation before long. In the meantime, it is easy to contact the company in the U.S., and it will be willing to send you a catalogue which contains a few products unobtainable elsewhere.

For example, the *DW8000 Synthdroid* is one of the few available editors for the Korg DW8000/EX8000 and, in the case of the EX8000, the keyboardless expander version of this powerful analogue synth, it could be invaluable. Synthdroid uses several windows to display the synth's filter envelope, amplifier envelope and delay line parameters, and fits most of the other parameters on a single page. Touch-sensitivity parameters are also included and you can fit 20,132 patches on a DSDD disc. It is claimed that the delay editor page allows you to create effects not otherwise available on the synth which is unusual, while the joystick can be used to give a variable amount of sustain rather than a fixed amount to each sound.



● Compu-Mates final trak sequencer.

There is a similar package for the Kawai K3 synth called *K3PO+* which stores 17,800 patches or 5,800 user waveforms on a disc and a Casio Cz editor with "artificial intelligence" patch-creation facilities. For the more upmarket user there are editors for the Oberheim Matrix 6 and Matrix 6R module, and the Kawai K5 which is not yet available in the U.K. already has a Compu-Mates a *Korg DSS-1* editor which will handle the keyboard synth and sample parameters, as well as its additive synthesis routines. Again, several artificial intelligence routines are included to help in the creation of new sounds.

On the sequencer side, Compu-Mates offers *Final Trak*, which has up to 128 tracks, Midi filtering, cut and paste facilities, System Exclusive patch dump routines and much more. Editing facilities are apparently highly-advanced – you can remove notes played by the right hand without touching notes played by the left hand – for instance – there is a tunable metronome which can be sent out over a Midi channel, switchable Midi Out/Thru, and an option of using a transcription package called *Final Score*.

Final Score will display any sequence in conventional music notation, offering different musical font sytles, cut and paste, alternative colours and so on, and you can enter notes on the screen and play them back as Midi sequences.

Patch Brain

On the hardware side, Compu-Mates offers the *Midi Patch Brain* which switches from eight to 16 inputs and eight to 16 outputs, syncs to tape and had an optional remote control. There is also to be a *SMPTE Brain* which will handle all kinds of time codes and tape sync as well, plus a package called *GenPedals* which allows you to use up to eight volume pedals, modulation wheels, faders, breath controllers or other inputs, each assignble to any Midi parameter in up to eight set-ups which can be arranged in 50 sequences accessible through a footswitch, which is for live performances.

On the drum machine side, Compu-Mates has a *DrumDroid* software package for the Kawai R100 which is reputedly a very good-value machine, and velocity, level, pan and tune can all be programmed and stored. All 24 drum sounds rather than a choice of only eight are made accessible from the micro keys and you can play the last sound used at

any pitch using the fourth row of keys on the micro.

Artificial intelligence routines are also included to generate fills and new patterns and it is possible to map the drum sounds to any synth keyboard layout.

Prices for the Compu-Mates range in the U.S. seem very reasonable, starting at $79.95 for the DW800 Synthdroid and going to $199.95 for Final Trak. There is also a *Synth droid* for the Akai S900 Sampler in the offing – that one should cost $129.95.

Compu-Mates, 8621 Wiltshire Blvd, 177 Beverly Hills, CA 90211 U.S.A., 0101 213271 7410.

Meanwhile, back in the U.K., Tigress Designs has recently sent the colour version of the Iconix Sequencer written by the System Exclusive team. Iconix has always seemed to be one of the friendliest professional-level sequencers, particularly in its use of a Soft Keys assignment system which lets you take over most of the important controls of the micro using keys, sliders or switches on your master synth.

Display

The colour display is obviously a little condensed compared to the monochrome version but seems straightforward in use. This version also includes a few fixes for minor bugs in the first release, mostly in the Midi clock and timing resolution areas.

Tigress Designs, 25 Burmester Road, London SW17 0JL, 01-946 7870.

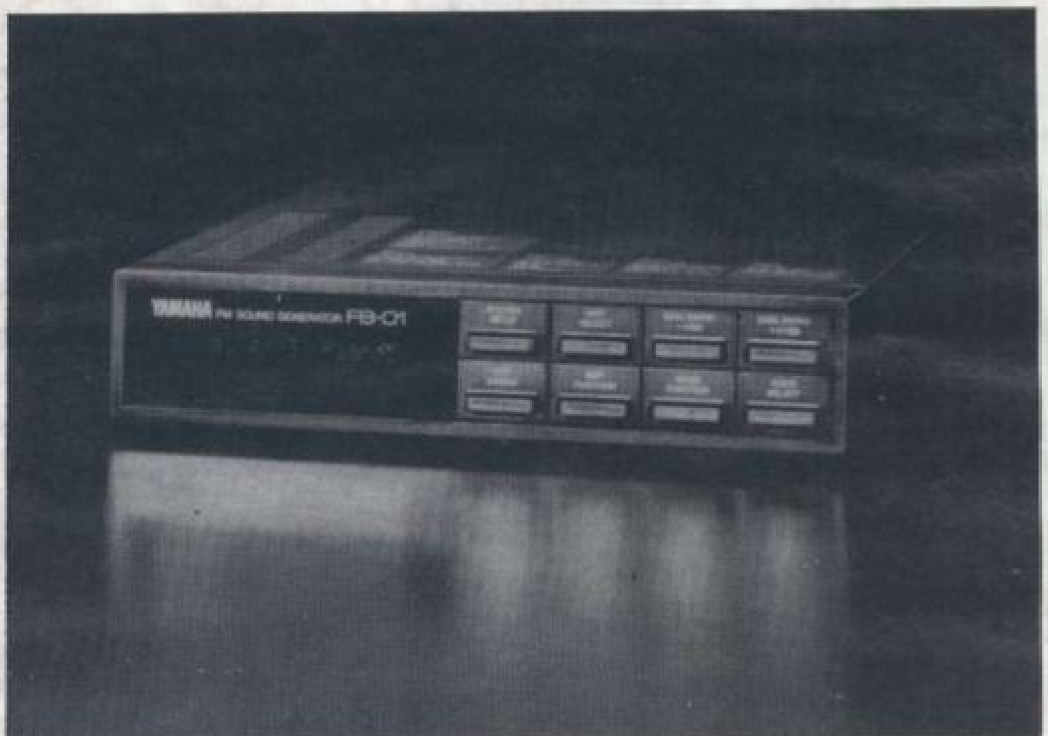
One of the most important musical applications of micros is in the field of sound editing. This is particularly the case when many of the most popular synthesisers – from the Roland JX-3P to the Yamaha DX7, Roland Alpha Juno and many others – have very few controls over a vast number of editable parameters.

In some recent cases this trend has become almost ridiculous. The powerful Yamaha FB01 synth module cannot be edited at all without a computer and the even more powerful TX81Z hides scores of editable parameters behind four control buttons. Obviously the controls and visual display of a micro can be useful here and the Midi System Exclusive codes make it possible for a synth to transmit and receive data about how its sounds are set up to a micro.

The same remarks apply to samplers such as the Ensoniq Mirage and the Sequential Prophet 2000 but in this case there is a vast amount of data to be stored which describes the waveshapes of the high-quality sampled sounds. Only a micro with the capacity of the ST can cope with this volume of data, although there are Ensoniq Mirage editors for the Commodore 64 and there may well be a few Commodore Amiga packages available before long.

If you want to add a polyphonic sampler to your ST and cannot afford the £1,000-plus price tag of a Mirage or Prophet 2000, Akai S612 sampler is now available at bargain prices – around £399 with a Quick Disk drive. It is six-note polyphonic and tremendously fast and simple to use, whether you want to play sounds from its library or make your own samples. The S612 would certainly benefit from more complex editing facilities and it has taken a time for a suitable package to arrive. We have just got hold of one – it is being imported by Syndromic and is from the Drumware *Soundfiler* range, which also includes editors for the Akai X7000/S700, Akai S900 and Casio FZ-1 and *Gen Wave*, a Generic Sample Editor which should work with any sampler conforming to the latest Midi Sample Dump standard.

The S612 sampler has two sliders on its front panel which allow you to set a start and end point for the sample and decide whether the sound loops between those points. The sliders are not accurate and the loop options are far from comprehensive.



● **The powerful FB-01 from Yamaha.**

Soundfiler offers a few more facilities particularly. The package runs in monochrome or medium-resolution colour and will load a default set of parameters for sample playback, unless there is already something in your sample memory. Two sample files labelled WAV are supplied and they are a Marimba and a synth-like Sweep. If you load one of those sounds its waveform is displayed in close-up and in long-shot on the computer screen; you can very easily draw in new sections of the sample using the mouse – useful for removing clicks. Fade at any point, crossfade to another sound, set the three sample play options – one shot looping, and alternating and Undo any action if you make a mistake. It is also possible to shift the start point/splice start point and the end or "tail" of the sound rapidly

It takes about 20 seconds to send a new sample across to the Akai S612 via Midi but only two seconds to send a new set of modified parameters such as envelope shape, filtering or loop points. The file options are straightforward, while the Akai options allow you to transfer either sample data, or sample data with other settings, to or from the S612. The voice option is a little less obvious; it indicates the availability of between one sound on a 520ST with several desk accessories installed and six sounds on a 1040 ST with none, any of which can be selected for transfer to the Akai. You can move voices around so that the sound you want is loaded from the Voice 1 position as a default when the program starts up.

Under the next option, Function, you are offered EQ, Loop, Envelope and Knobs. EQ allows you to set a Peak, Band or Notch filter with high or low cut-off for the sample, with variable resonance and frequency. This is a facility which is not available on the S612 which just has a low-pass tone control and so could add many possibilities to your sounds.

You can undo the EQ at any time and the option to play a note on the S612 exists on this page, as it does on the main Loop page and on the Envelope page, which again offers options not available on the S612 alone. You can reverse, phase invert, insert, merge, replace and copy using portions of the total sound and this page allows you to combine parts of two different sounds if desired. You can draw your own volume envelope – impossible on the S612 alone – and increase the overall volume to the maximum possible before distortion occurs.

Knobs duplicates the vibrato speed/depth/delay, filter, release, total tune, loop mode and mono/poly controls on the sampler, adding a Transpose value from minus 24 to +39 semitones. The last section – identified just by a musical note at the top of the screen – brings up a keyboard display which allows

you to set any note with any velocity to be played from the computer, and also allows you to set high resolution – slow waveshape drawing – or low resolution – fast waveshape drawing – for all the waveform displays.

The Soundfiler handbook is well-written and acts as a guide to sampling techniques in general, as well as a reference work for the software. It points out that you can create fuzz, flaing and echo effects with careful use of various Soundfiler options, explains cross-fade looping and the ways in which this can smooth very different sounds together, and generally answers most of the questions you may have about operating the package.

Soundfiler is not the most inexpensive package in the world at slightly more than £150 but adds an enormous amount of power to your S612. It does not make it multi-timbral – capable of making different sounds with each voice like the more expensive S700/S900 and X7000 units – but it allows you to improve the quality of loops and splices, join bits of different samples – for instance, putting a timpani on the start of an orchestra crash and modify your sounds in ways which are not available on the S612 alone. In other words, Soundfiler makes the inexpensiv S612 a much better proposition if you want : polyphonic sampler to add to your ST.

Syndromic Music, 24-26, Avenue Mews, Muswell Hill, London NW2, 01-444 9126.

The Digidesign *Soft Wynth* range, which helps create synthesiser sounds on samplers such as the Ensoniq Mirage, Prophet 2000 and Emulator, is now available on the Atari ST. U.K. importers have not been announced yet.

Evenlode Soundworks is a new company born from the U.K. importers of Steinberg music software. The company will handle several Midi-related lines as well as steinberg software; one of the most interesting is the *PPS* (Poor People's SMPTE) convertor from J L Cooper.

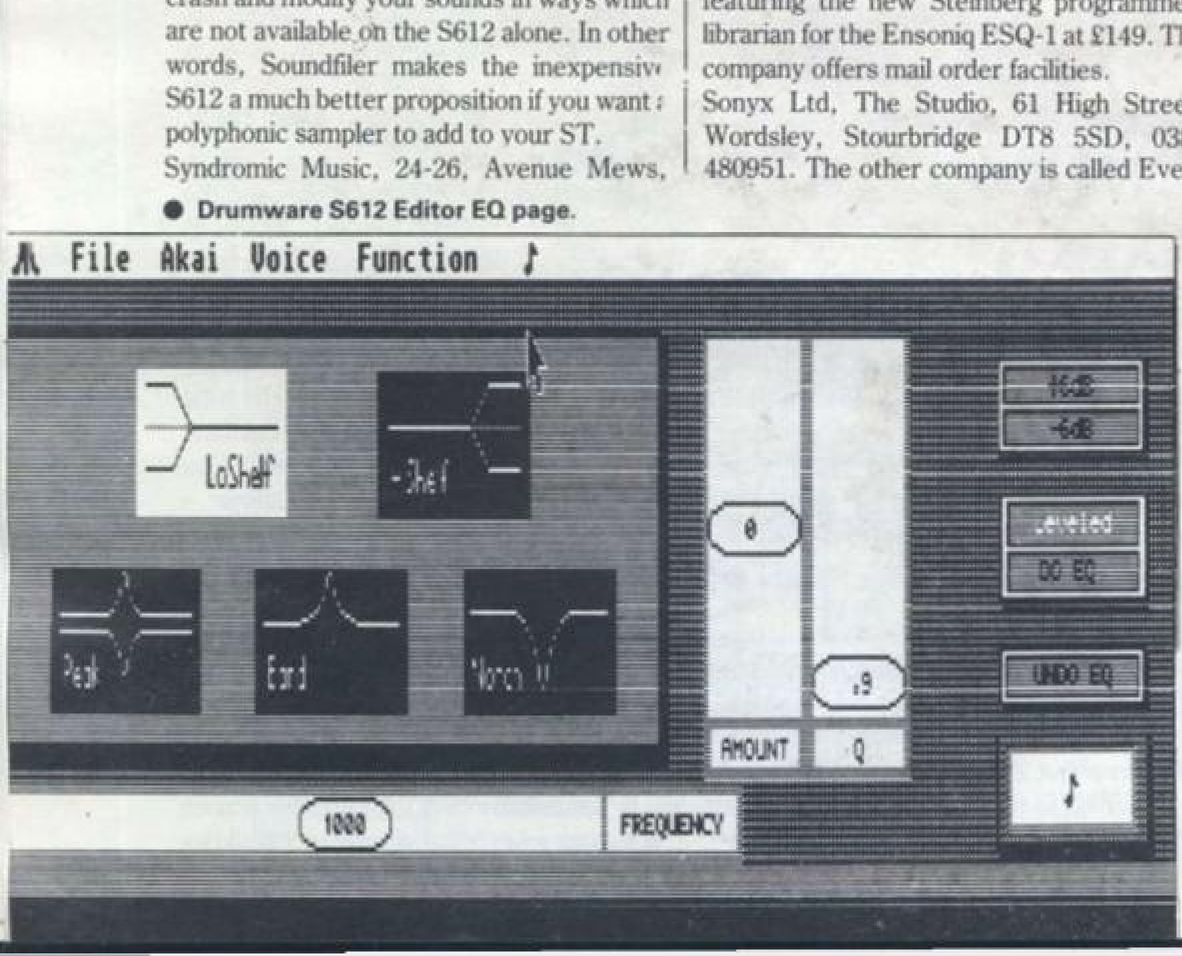
The unit does not use a conventional SMPTE time code but has many SMPTE-like abilities; it can lay a synchronisation code to tape, read it back to interpret a time code, and trasmit both Midi clocks and Midi Song Position Pointers as a result.

If you are based in the Midlands there are now two specialist computer music software distributors which could be of help. One is Sonyx at Stourbridge, which sells Steinberg and Hybrid Arts systems for the ST, and is featuring the new Steinberg programmer/librarian for the Ensoniq ESQ-1 at £149. The company offers mail order facilities.

Sonyx Ltd, The Studio, 61 High Street, Wordsley, Stourbridge DT8 5SD, 0384 480951. The other company is called Evenload Soundworks, The Studio, Church Street, Stonesfield Oxford OX7 2PS, 099389 288.



● **Even more powerful Yamaha TX802 FM Tone Generator.**



● **Drumware S612 Editor EQ page.**

On the subject of sound editing, a new company Softworks has launched a package aimed at the Yamaha powerful but inexpensive TX81Z synth module. Called *EDTX81Z*, it runs on a monochrome monitor only and is designed to edit and store sounds for the module.

The TX81Z is a powerful synth – at only £450 or so it fits into one unit of 19in. rack space, plays eight-note multitimbrally but is very difficult to edit because of an extreme lack of front panel controls. That is partly because it could allow you to make the most of four-operator FM synthesis. The operators Sine wave oscillators which create the sounds are also capable of non-sine waveshapes, which can give a thicker overall sound, and you can detune them from each other in various ways and add effects such as delay and autopan.

EDTX81Z solves all the editing difficulties by putting the synth parameters up to a single screen. In fact there are two alternative editing layouts – a fully graphic one with diagrams of the algorithms used and an alphanumeric one dealing largely in figures for more precise editing.

It is possible to slave up to eight parameters together so you can alter several simultaneously, and to speed or slow the rate of change. Once you have edited a selection of sounds you can save them singly or in bulk, and if you save them to "Bank I" they will be transferred instantly to the synth as well.

You can also edit complete sets of performance parameters which assign the number of voices available for each sound, the sounds used, the pan position, effects and so on. You can play any note on the synth at any velocity using the computer Control button, which is useful if you want to do some editing without your mother keyboard being present, and you can re-program the Midi Patch Number response of the synth, so any sound you like can come up on receipt of any Midi patch change command.

You can also program a new scale for the synth and invert the existing microtonal scales. EDTX81Z also allows you to randomise the scale, which may be useful for percussion sounds. EDTX81Z lacks randomising functions for the sounds although they may be added on a later version.

Softworks is also thinking of releasing editors for the Roland MT32 module and the Yamaha DX7MkII/TX802 and they are expected to sell at the same price – £59.95

EDTX81Z is available from Softworks by mail or from Argent's in Denmark Street, London WC2. On the whole, the program is more precise than its main competitor, the *Sound-bits TX81Z Voice Master* from Syndromic, but lacks its randomising functions and will work only on a monochrome monitor at the moment. It is £10 cheaper.

Softworks, 32 Chalcot Road, London NW1, 01-586 7331.

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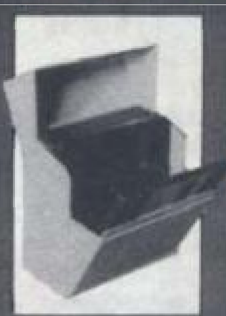
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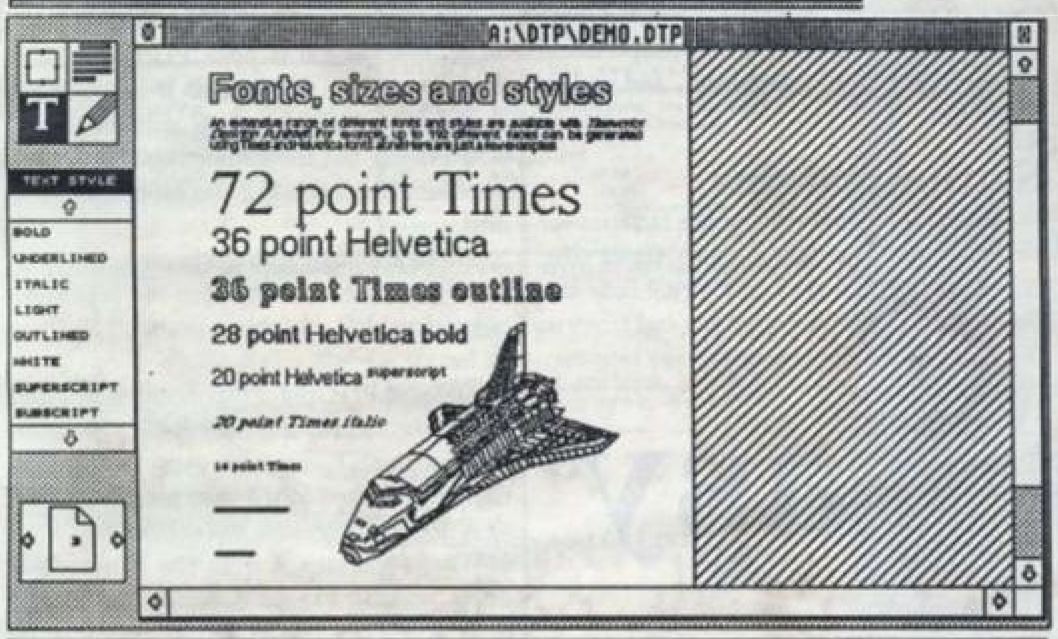
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Work time

Elliott Stein previews a powerful publishing tool.

After producing one of the best word processors for the ST as well as an exceptional database and spreadsheet program, Timeworks has turned its attention to desk-top publishing.

Using the basic operational conventions also used by *Fleetstreet Publisher* and *Publishing Partner*, *Timeworks Desktop Publisher* is capable of producing newsletters, fliers, invoices, catalogues, presentations, brochures, manuals and other types of documents of up to 200 pages which are usually created by professional printers.

If you have used one of the other desk-top publishing programs for the ST, learning to use Timeworks DP should pose no difficulty.

On loading the program the Toolkit appears in the top left corner of the screen. The Toolbox is the area from which the operational mode is chosen. When starting the program the Toolbox is in Frame Mode, since the first step in creating a document is drawing the frame which will hold the page text and pictures.

Once the page is drawn you may choose to view it in the work area in three zoom styles by using the 'Page' drop-down menu. A page may be viewed in half-size, actual size, double-size or two-page mode, which allows side-by-side pages to be examined together.

The Frame mode also allows copying, editing and moving frames from one page to another, as well as re-sizing the frames at any time.

Once a frame is drawn, text or pictures can be imported from other programs. In addition to loading pure ASCII into a document, text created with *First Word, First Word Plus, Word Writer or WordStar* may be used and still retain its formatting. That is a practical improvement over Fleetstreet Publisher and Publishing Partner which permit only unformatted ASCII.

Timeworks DP accepts line art and image files only from programs such as *GEM Draw* and allows one to scale the pictures to any size. Unfortunately, since most people use *Degas* and *Neochrome* to create graphics, a separate snapshot program inconveniently will have to be used to convert the files.

Loading text or pictures is simple. Choose 'Import' from the 'File' drop-down menu, then select which file to load. Once selected, position the mouse pointer over the frame where you want it to appear and click once.

Under the Toolkit is a section of the program called the Browser, a small area which lists all of the text and picture files used in the document when in Frame Mode. When in Paragraph Mode the Browser lists all the paragraph styles; in Text Mode it lists all the text styles and in Graphics Mode it is replaced by icons representing the Graphic Drawing Tools.

Below the Toolkit is the Page Icon which lists the current page number, as well as allowing one to change pages continuously. In text mode, Basic word processor functions are available for editing existing text or creating new text with its Basic text editor. Though such functions as cut and paste, search and replace and others are included. The Timeworks DP text editor cannot compare to a full-featured WP like WordWriter and is recommended for mild editing and creation.

Complete status

The font/size option is available from the 'Style' drop-down window which offers complete control over font size – from seven-to 70-points – and style. For accurate measurement, the Timeworks DP ruler at the top of the workspace offers the units – pica and points, centimetres, inches and tenths or inches and quarters. Using the 'Options' menu, attractive frame borders and frame tints may be added.

Other attractive features include complete status display; mouse or macro-driven operation; cut and paste operations of whole frame or blocks of text and graphics; re-sizeable windows for workspace hyphenation; creation of footers and headers; multiple text styles – bold, underlined, italic, light, outlined, white, subscript, superscript or combinations; full control over word spacing; kerning – controlling the distance between two letters; graphic tools for simple drawing; and filled shapes, help menus, and other features.

The program also includes a generous selection of printer drivers and a concise well-documented manual.

Timeworks Desk Top Publisher produces a crisp and brilliant printout on a dot matrix printer which is perhaps the closest it can approach laser printer quality. The quality and spacing of the fonts proved far more pleasing to the eye than sample printouts created by the other two desk-top publishing systems.

If one already owns Fleet Street Publisher or Publishing Partner and is not satisfied with the products, Timeworks Desk Top Publisher may be a wise investment. For those who are satisfied with those other products, Timeworks DP probably would not be a wise investment, since it contains most of the features which exist in the other two.

Timeworks Desk Top Publisher could be the better of the desk-top publishing programs for the ST because of its ease of operation and the results its printout yields. It is certainly a bargain at £99.

Speak Easy

Elliott Stein finds Gold in software.

The best things in life are free but that is not entirely true when discussing the subject of public domain software. PD software for the ST ranges from a full-function desk accessory word processor to a useless program which changes the mouse pointer into a small picture of Mickey Mouse, from complete operating languages to programs which do not boot up and cause your machine to crash.

On the IBM, Apple, Mac, 8-bit Atari and other systems which have been in existence for more than 10 years, PD software is a rich and vast field featuring programs of such high quality that many are good enough to be distributed commercially.

After being in existence for only three years the ST is beginning to acquire interesting and useful PD software which, according to UKST User Club, one of the many organizations in the U.K. which serves ST users with a PD software library, "began with the hackers". Their first thought after writing a program was to share it and, as the name suggests, PD software is not protected by copyright. As time passed shareware was developed. Though it is copyright, the author allows it to be distributed freely in the hope of contributions from people who have used the software.

A variety of software is available on the ST in PD – games, utilities, desk accessaries, word processors, business software, programming languages, graphics programs and many others.

Five reviews

This month we look at PD desk-top accessories and review five which deserve the recognition of PD Gold. The first title worthy of mention is not a desk accessory program but an invaluable utility written specifically for other desk accessory programs.

This very practical and invaluable utility, written by Eric Robishaw, is a program I have been using and taking for granted for the last two years. *Accessory Loader*. When placed inside the auto folder on the ST boot-up disc a menu appears which lists all the desk accessories which appear on that disc. From that menu, by inputting the numbers which appear in front of each listed desk accessory program you can select which combination of programs you wish to be present in the ST memory. For people who wish to store all of their desk-top accessories on one disc, as I do, it permits you to pick and choose the ones best-suited to whatever task for which you will be using your ST.

The next PD Gold program is the desk accessory *System* by programmer Paul Camilleri. System performs most of the functions of the control and RS232 desk accessories included on all ST langauge discs but takes only one desk accessory slot while the control desk accessory takes two – Control Panel and Install Printer.

On choosing System, a menu appears on-screen which offers a choice of four menus – Printer, RS232, RGB and Notepad. The Printer menu offers a vast selection of functions for controlling your printer. You can choose to turn on or off; near letter quality mode, elite, condensed, italic, proportional spacing, subscript, superscript, and underline.

Setting margins

Also on the Printer menu are facilities for setting the left and right margins, paper size, letter spacing and performing real-time line feeds, form feeds, head setting and reverse feeds.

The RS232 menu contains settings for 300 or 1,200 baud rate, X-modem on or off, none or even or odd parity and RTS on or off. The RGB menu offers the frequently-used slider bars to change the colours of the computer and the Notepad menu offers a screen in which you can input notes and other reminders. It is not a very useful function because you cannot save what you have written.

Compatible with most GEM word processors and business software, all System needs is the Control mouse, keyboard speed, alarm and clicking functions to make the Control desk accessory redundant.

An ingenious example of PD Gold is *New Word*, a convenient word processor desk accessory, written by Gregory Schneller and available through most GEM programs via the desk accessory drop-down menu.

Many options

By clicking the NewWord option in the desk accessory a resizeable window appears with the date and time at its top – this is the screen for the macro-driven word processor. Pressing the 'Help' key brings up a menu which lists the many options available.

Other macro controls include facilities for clearing the current document, splitting a line, splicing a line, using insert or delete modes, inserting or deleting a line, marking a section, move, delete and copy block functions, search file, printing, appending files, copying files, setting next style, as well as many other functions you would expect from a quality word processor.

Also in the program are facilities for setting-up a print spool, setting the disc path, re-naming files, setting the desk-top colour, calling a convenient calendar, and a typewriter mode.

Though it does the job it still is not close to being in the league of one of the excellent ST GEM word processors such as *First Word Plus* or *Word Writer*, nor does it try to be. The strength of *Word Window* is in being a desk-top accessory. It performs perfectly as a desk-top companion to any financial program or database, as well as being the perfect tool for reviewing GEM software.

Streetfinder 1.0 is pure PD Gold and is written by John Buchanan. It is a brilliant shareware program which may be distributed freely but the author requests you to send him $10 if you like the program a good deal.

There are many address book desk accessory programs available for the ST, commercial and PD, but this is probably the best so far.

The final PD Gold of this month is *Intersect* by Randy Mears, the best RAM disc available for the ST, superior even to commercially-distributed RAM disc programs such as *K-Ram, Hippo-ram* and others.

What separates it from the hundreds of other available PD RAM disc programs is its desk accessory status and its ability to be activated, de-activated and re-sized at any time without having to re-boot the ST.

When Intersect is chosen from the desk-top a well-designed menu appears which allows you to allocate the amount of RAM to be used. After choosing the disc icon in which you want it to appear, click on the Activate box and your RAM disc is there.

After doing your disc copying or for whatever else you need the RAM disc you may click the REMOVE box and the ST is back to normal. You can continue re-sizing, activating and removing the RAM disc as many times as you wish without having to re-boot. As an added bonus, it also tells you how much remaining RAM there is in the computer.

Software libraries

There are dozens more PD desk accessories including hundreds of calculators, printing utilities, modem utilities, snapshot utilities, print spools, games, puzzles, calendars directories, multi-purpose desk accessories and scores of others.

Where can you obtain them? In next month's PD column I will tell you about software libraries, such as Page 6 and UKST, which provide an important service to the ST PD collector. We will also look at more titles of PD Gold.

All authors of PD and shareware programs, as well as collectors and PD software libraries, are invited to send their PD software to Elliott Stein, c/o BITS Productions, 67 Sutherland Avenue, Maida Vale, London W9.

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R O M

With the new year dawning, *Your Computer* is bringing you a special report on developments in information storage media.

The first home micros utilised what was then the latest in audio technology, the cassette, a form which was easy to use and, above all, extremely cheap. The paths of audio and information diverged when IBM waded into the micro market with the Personal Computer in 1982. Where IBM leads, others have to follow, and the diskette became the standard. Not all disks were 5¼in., however. Other 16-bit machines from Atari and Commodore, the ST and the Amiga respectively, were based on a much more efficient 3½in. format, a fact acknowledged by IBM in moving over to 3½in. itself for its PS/2 range of machines.

Now the supremacy of the magnetic disk looks like being severely challenged by media capable of storing far greater volumes of information. CD-ROM is about to be given a significant boost by the launch of the first machine for it which will also play audio CD. The company is Atari and the price is £399, two factors which make it a phenomenon not to be ignored. Yet the technology has taken several years to reach the mass market. Why has it taken so long? And how many companies are going to want to become involved in this development? On this page, Robert Lander investigates the tortuous history of CD-ROM and on page 62 Amon Cohen talks to Nick Alexander of Virgin about what future he sees for his organisation in the compact disc.

Our special report also features the latest news from Jim McClure on the progress of Digital Audio Tape. Already seen as a rival to CD in the audio field, DAT has a tremendous future ahead of it as a medium for backup and archival facilities.

As with the cassette, audio and information are again utilising the same technologies. Listen to the sound of the future!

Beat DAT ROM!

CD-ROM technology has been lying around for a few years – but, unfortunately, it's been lying round and doing very little else. As far as major applications of the technology are concerned, the message in the last 12 months has seemed to be a case of: "Don't call us, we'll call you".

promise to resuscitate CD-ROM and restore health and useful life to a technology which has been in a slightly seedy (triple entendre intended!) state of health. These developments centre on the entry into the CD-ROM game of two players, Atari and Microsoft, who are both industry heavyweights in their very different styles.

Before looking at the recent moves by Atari and Microsoft, though, it would be useful to review the technology and its history. In the process we can discover some of the reasons why CD-ROM has managed to wander down such a cul-de-sac.

What do I mean by a cul-de-sac? What I'm trying to suggest is that CD-ROM has failed so far to take off commercially and that the reasons for this are the stumbling, fumbling ways in which many products have been brought to the market. To give you an example, there are now several hundred CD-ROM titles available but more than one producer has told me confidentially that sales of an individual title can be counted almost on the fingers of one hand.

What makes this all the more disap-



● **The Hitachi 15035 is a CD-ROM optical disc drive with combined audio and stereo storage.**

pointing is its obvious appeal. CD-ROM is an optical disc (incidentally, the accepted convention is to refer to magnetic media as "disks" and optical media as "discs"). Information is written to and read from CD-ROMs via lasers which actually write the data by burning microscopic pits on the surface of the disc.

The appeal of CD-ROM is that it can store huge amounts of data. A conventional floppy disk can hold 360K; a compact disc, which looks like a compact audio disc, is less than five inches in diameter, weighs less than an ounce and can store 550MB. In reality, this is not quite as awesome as it sounds. In order for the data to be searchable it has to be indexed and the indices eat quickly into that 550MB.

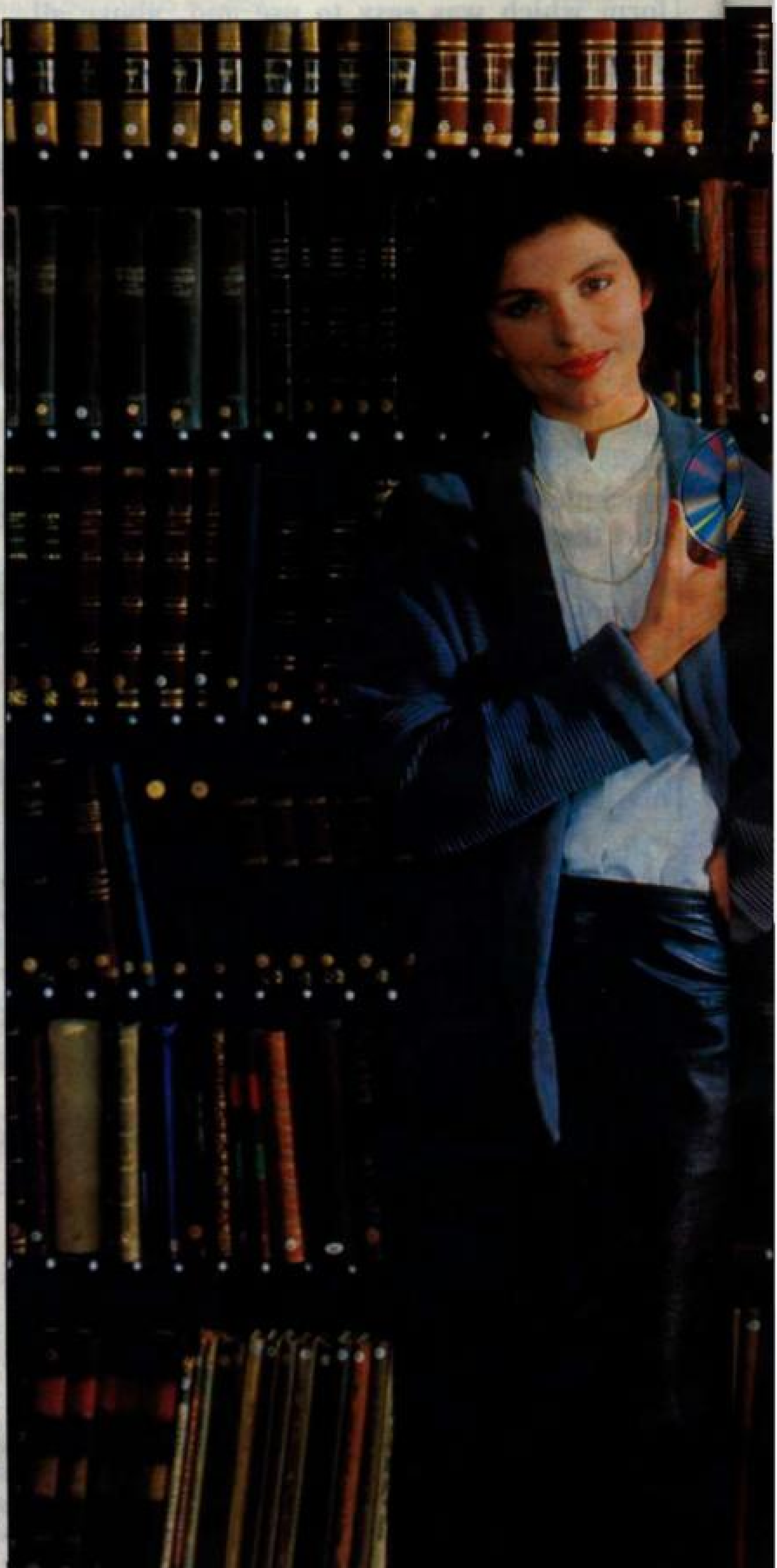
Even so, a CD-ROM can still hold vast amounts of data which ought to make it a logical medium for the distribution of collections of information. It is an expensive technology because it costs a great deal to prepare the data and then to stamp out the discs, but the cost per disc falls as the total number produced increases. It is a simple question of economics – all it takes is finding the CD-ROM title which thousands of people want to buy. The problem has been that you need a CD-ROM drive which connects to your computer in order to play them. Given this expense, consumers have to be persuaded that there are enough interesting CD-ROMs around to make the investment worthwhile.

Sounds easy? With all these advantages, then, where and how did CD-ROM go awry? The first mistake was to target it at the wrong market. CD-ROM can store large amounts of information, so it seemed obvious that people like librarians and information officers who routinely accessed large amounts of information would be interested. Wrong! Since this information market relies on online databases, the CD-ROM producers decided to offer a set of discs which duplicated exactly existing online databases.

This was product design and marketing at its most unimaginative: all the CD-ROM producers were offering was the same product in a different medium. There was very little interest. Online databases are expensive, so the librarians did not have money to throw about. In addition, librarians are interested in up-to-date information – which is why they pay out so much for online – and it is much easier to update an online database than it is to press and send out new CD-ROMs every week.

The shabby fact, too, was that many of the CD-ROMs were of a quite dreadful quality. All the information was there on the disc but the search software – which is the key to the usefulness of the technology – was so feeble that it took an age to home in on the information. Online databases survived the expected onslaught of CD-ROMs not least because the databases did their job so much more efficiently. The only exceptions are collections of information about business companies produced, for example, by Disclosure and a few others. Disclosure packaged the information in a way that gave the CD-ROM added value compared to the online databases.

What made this first generation of products all the more frustrating was that one of the problems which threatened to



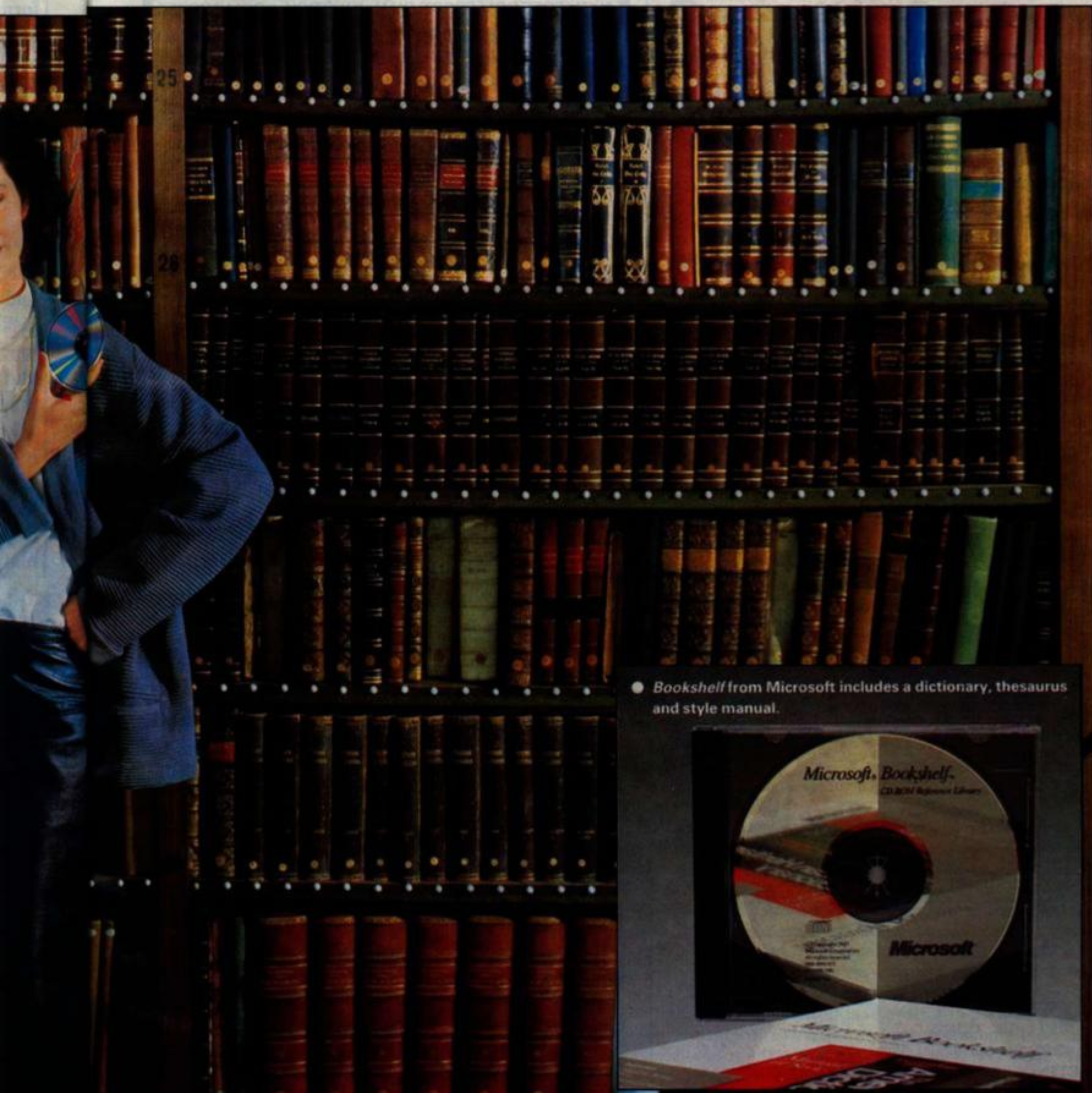
● **Right: Meet the new library assistant – the Philips CD-ROM has a capacity of 600MB, equivalent to 250,000 A4 pages of text.**

inhibit the the technology, namely the inevitable problem of standards, had been sorted out already. A group of companies had announced the so-called High Sierra format which meant that the data could be stored in a standard way and so be read by different computers with different operating systems.

It was not long before other related technologies began to distract attention from CD-ROM. First, optical discs became big news. The difference is that you can write your own data to optical discs and then read from the discs – this gave rise to the acronym WORM (write once, read many times). When the IBM PS/2 range included an option for optical discs it looked, from the point of view of CD-ROM, as if the worm had indeed turned. In fact, a recent report has suggested that CD-ROM will fade as a new kind of read-only optical disc (OROM) begins to arrive.

Even worse was to follow with the confusing announcement of yet another optical technology, compact disc interactive (or CD-I for the acronym collectors). CD-I was the brainwave of Philips and Sony and was designed to be a consumer prod-

Continued on p.58



- *Bookshelf* from Microsoft includes a dictionary, thesaurus and style manual.

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uct which would integrate text, sound and images. it managed to steal yet more of the by now muffled thunder of CD-ROM. CD-ROM, incidentally, can store graphics as well as text but – thanks to confusion about PC graphics standards – this possibility has not yet been tackled.

By this stage of its history, CD-ROM was in a sticky position. The first wave of products had been feebly designed, feebly produced and feebly marketed. WORM and CD-I were helping to make the ground not merely sticky but treacherous to the point where it looked as if CD-ROM might go under.

Most of the CD-ROM apologists had an explanation for this. They cleared their throats before announcing that their products were not selling because not enough people had bought CD-ROM drives because there were not enough CD-ROMs available. With scarcely a blush it was explained that this was the classic chicken and the egg situation.

Nobody dared point out that this was actually a case of what the Americans call a chicken and chicken situation: nobody bought drives because they were wildly over-priced and nobody bought CD-ROMs because they were not very interesting products. The public's reaction was: "Include me out!"

In fact, hidden from the public view, CD-ROM has been doing respectably well. A few companies have been selling satisfactory quantities of product designed to meet particular applications. *SilverPlatter*, for example, has transferred over 20 million addresses and postcodes to a CD-ROM. One of the most interesting applications was developed by the National Radiological Protection Board; the board was searching for the poisonous gas radon and, once it was found, the CD-ROM was used to identify all houses and postcodes in the danger area nearby. In other words, CD-ROM has found some areas where it out-performs alternative technologies.

The point to emphasise, though, is that these successes are one-off applications. CD ROM works best if there is a set of information which remains static – a good example is legal text-books. A London-based company called Archetype has produced CD-ROM versions of several legal reference works – the CD-ROMs allow a lawyer to home in on a particular piece of information and any cross-references much more quickly than he or she could do with the printed volumes.

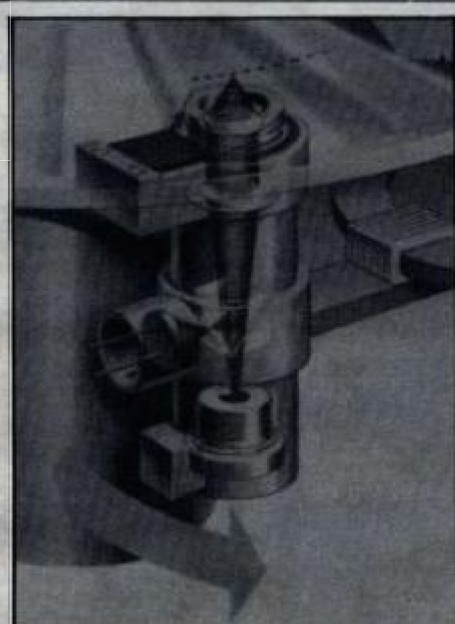
All this means that CD-ROM is some way short of the level of popular appeal which was generally predicted for it only a few years ago. The big question now is whether the combined clout of Atari and Microsoft can do anything to remedy this situation. In other words, will CD-ROM enter the mainstream or will it remain a peripheral technology, suitable only for a small range of specialised applications?

Let's look first at the Atari offering. A couple of years ago, Atari announced plans for a CD-ROM drive and, last October at the PCW show, the company was showing off a prototype and predicting delivery by Christmas 1987. The product was officially launched at the Comdex show in Las Vegas in November.

Two things make the Atari product interesting. The first is the price – Atari plans to sell it for £399. So far, CD-ROM drives have been over-priced and Atari will be introducing some long overdue competition into the market. The second point of interest is the fact that Atari has ambitious long-term plans for the CD-ROM.

What it wants to do is to make the CD-ROM an integral part of a complete 68000-based system which will also include desk-top publishing and networking. In other words, CD-ROM is locked into Atari's determination to rival IBM and offer a complete business system. The CD-ROM part of this system was conceived and developed by Atari in the U.S. and a proper marketing campaign in the U.K. will not be underway until well into 1988. So, at least for the time being, we'll have to wait and see. Incidentally, the prototype at the PCW show was disappointing since it could only play one CD-ROM, the *Grolier Encyclopedia* and, inevitably, with text but no graphics. The fact that the Atari drive will be able to play both CD-ROMs and audio compact discs is something of a red herring: it sounds a good idea but will the combination really be any use?

Meanwhile, Microsoft is about to ship copies of its *Bookshelf CD-ROM*. We hope to review this in the next issue of



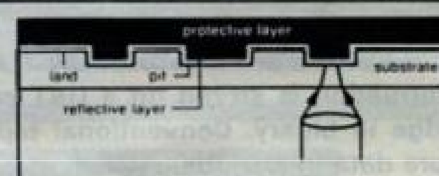


Fig. 1. Data are impressed into the substrate as a series of pits of variable length and are read by laser through the transparent substrate.



Fig. 2. A binary "1" is represented by a land/pit or pit/land transition: the number of "0s" is defined by the path-length between transitions.

How CD-ROM works

The two distinctive features of CD ROM are the form in which data are stored and the method by which they are read.

Fig. 1 illustrates the storage method. Data are impressed into the substrate as a series of pits of variable length along a spiral of constant pitch (1.6 μm). The indented surface of the substrate is then given a reflective layer and finally coated with a protective material.

Laser light passes through the substrate and is focused on to the reflective layer. Light is reflected in the area where there is no pit (called "land") and largely scattered by the pit. Thus a change in the level of the reflected light signal represents a transition from a pit to land or the reverse, as shown in fig. 2. For various reasons, binary "1s" and "0s" in the data are not simply represented by pits or land. Instead the transition from a pit-to-land or land-to-pit is a "1" and the path length between transitions, either pit or land, represents a certain number of "0s". However due to the fact that data are modulated, these "1s" and "0s" are not the same as their end-user equivalents.

Your Computer so we will only say here that this is the application which might – and the word has to be "might" – achieve the break-through as regards general interest in CD-ROM.

The next 12 months are likely to provide decisive. CD-ROM will either engage the interest of the general computer user and so become a major technology or it will continue in its present incarnation as a technology best suited to a small range of applications and so of peripheral interest to you and me.

What's in store

The Digital Audio Tape (DAT) cartridge looks set to supersede the conventional analogue cassette. Sony, in a joint venture with Hewlett Packard plans to develop a range of DAT based computer storage products with memories as large as 1.2 gigabytes.

DAT has emerged from the technology used in the compact disc – digital signals used by the compact disc to record audio are also used by DAT. Information is stored on a DAT cartridge in binary. Conventional tapes store data in analogue, which means the computer has to convert information into digital format, allowing for a far greater chance of error.

Double encoding the digital signals allows DAT to check the clarity of the original signal. By cross-referencing the information, any error will be recognised by the system and the information repeated until the answer is correct. This signal is read by a small servo head, similar in principle to those used in video recorders.

HP and Sony plan to have a 1.2 gigabyte machine on the market by the end of 1988. Hewlett Packard is developing the interface and operating system.

Prices for DAT computer machines have yet to be announced, but DAT audio cassette players cost around £1,200 and the cassettes around £10.



Magnetic discs byte back



The main department in which the humble diskette is lacking when compared to the new media is in its lack of capacity. Hard disks are becoming sizeable – the latest Compaq 386 can manage 330MB and the IBM PS/2 has storage space of nearly 400MB, but the floppy is not.

The PS/2 is holding up the increase of floppy capacity. IBM has set a limit of 1.4MB on its floppy disks for that machine, although it is quite possible to go much higher. Again, the weight of IBM is dominant: if Big Blue is not going to seize the initiative, no one else will dare to do so either.

One company attempting to kick against the pricks is RPS, one of only two fully-integrated magnetic media manufacturers in Europe. It has just released a 2MB floppy and has 4MB and 8MB versions ready to roll as soon as the disk drives of the hardware manufacturers can catch up.

RPS, a French organisation, has developed a means of coating disks to a depth of one micron instead of the conventional 2.5 microns. This enables the recording signal to be less diluted, even at higher densities.

RPS is also well-advanced with its plans for DAT but again it is withholding production until European and American start to produce the hardware *en masse*.

Company	Telephone	Notes
Archetype	01-251 8644	Develops individual CD-ROM applications
Atari		About to release its long-awaited CD-ROM
Disclosure	01-434 1208	Produces CD-ROMs of business information
Hitachi	01-848 8787	The world's largest producer of CD-ROM drives
Learned Information	0865 730275	Publishes CD-ROM magazine and organises CD-ROM conference
Microsoft	0734 500741	Has produced the Bookshelf CD-ROMs
Pergamon Compact Solution	01-377 4600	Robert Maxwell's company (one of them!) which provides CD-ROM services
Philips	01-689 2166	Responsible for many of the innovations in optical technology
SilverPlatter	01-995 8242	Has probably produced more CD-ROMs than any other company

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NEW FOUND LAND

NICK ALEXANDER OF VIRGIN PUBLISHING HOLDS HIGH HOPES FOR CD-ROM. AMON COHEN REPORTS.

One software company planning to avail itself of the developments in CD-ROM is Virgin Publishing.

Being part of the enormous Virgin Group, the largest leisure empire in the country, the opportunities for exploiting several different media are manifold. Nick Alexander is the head man. He was in on CD from its earliest days when he worked at Thorn and witnessed its doomed attempts to develop interactive video. 'Thorn invested £20 million in programming for VHD', he says. 'That was a system half way between LaserVision and the CED system by RCA, which had been a failure. In the end it was never seen commercially. 'Thorn came up with the Electrical Capacitance System but, unlike CD, there was tremendous wear on the disc and it was locked away inside the machine so that you could never see it. That is one of the beauties of CD: it is visible and looks good, making it a very saleable item.'

Having seen so many pioneers come a cropper in the past, Alexander is wary of new technology products. The fact that he is keen to invest in CD-ROM indicates how strongly he believes this is a genuine path ahead for information storage. With Virgin's entry on to the stock market, he certainly has considerable resources to play with, recent market crashes notwithstanding. Nevertheless, Alexander's techniques are cagey ones. 'We don't want to be market leaders', he says, 'we want to be in second place'. This policy allows him to watch the trailblazers make mistakes and then strike when the product has been fully tried and tested.

Alexander is fairly sure about CD-ROM therefore. He recalls the title of a book on the medium which appeared several months ago, entitled *"CD-ROM – The New Papyrus"*. 'That is quite true. It is likely to be as revolutionary for communications as was paper before it. Virgin has interests in many different fields – music, film, video, cable, satellite, publishing – and all these technologies are converging, on CD-ROM in particular.'

One of the first applications will indeed be in publishing. Books on CD-ROM are already very popular in the United States and Alexander wants Virgin to be one of the first companies to develop that idea here. 51% of the large publishing house W.H. Allen has been acquired and it is common knowledge by now that Virgin is trying to get its hands on Methuen, a potentially enormous deal. Up to now, most Virgin books have been firmly in the realm of popular culture, so these developments would be a significant departure. Methuen publishes many educational books, a factor which ties in neatly with the major usage of CD-ROM books in the storage of reference works.

Virgin may even offer its CD-ROM service to other publishing companies, so we could see *Encyclopaedia Britannica*, the *Karma Sutra* and other major reference works on disc before too long.

Using this medium, it will also be possible to generate orders for books on CD-ROM. This is connected with another application Alexander is working on in conjunction with high street banks. Plans are afoot to install interactive video units selling insurance and other auxiliary banking services. Midland Bank already has 300 video disc installations and initial tèsts are showing that branches with such machines are doing better business than branches which do not. 'Lots of people prefer to take their information from a machine,' says Alexander. 'Unless they are old-fashioned technophobes, they enjoy pressing buttons and they don't have to worry about being thought ignorant by bank employees.'

Alexander envisages shopping centres of the future filled with machines approached by shoppers wishing to use them to discover more about products and place orders.

Attracting punters will require a complex psychological approach, best mastered to date by purveyors of arcade games. Enter, at this point, Mastertronic, of which Virgin has just acquired a 45% interest. Virgin has not made this move simply because it wants a good budget software label to complement its more up-market games. Another interest of Mastertronic is an arcade business called Arcadia. Its consequent expertise in computers in public places will be of immense value for designing the CD-I machines. Ease-of-use and ritzy graphics will be of paramount importance in attracting the attention of potential punters.

It is true that in a sense CD-I is going to

act as a stop-gap for even more ambitious plans in the development of cable. Initial expectations of popular acceptance of it have proved to be premature. Another division of the Virgin Group, Virgin Vision, is having to put its plans on hold. Alexander says, 'It is some way off before there will be cable in every home. In the short-term, CD-I will provide similar services, but in communal places instead. Both CD-I and cable are more impressive visually and more user-friendly than Prestel. Cable has the most potential of all, but its advent is still five to ten years away.'

There are applications for CD-I beyond a glorified Damart catalogue, however. An interactive video on Sir Ranulph Fiennes' round-the-world expedition is currently in preparation. In the first instance it will run on the BBC Doomesday Project hardware, which employs LaserVision. CD-1 is the next step up in terms of true interactive video.

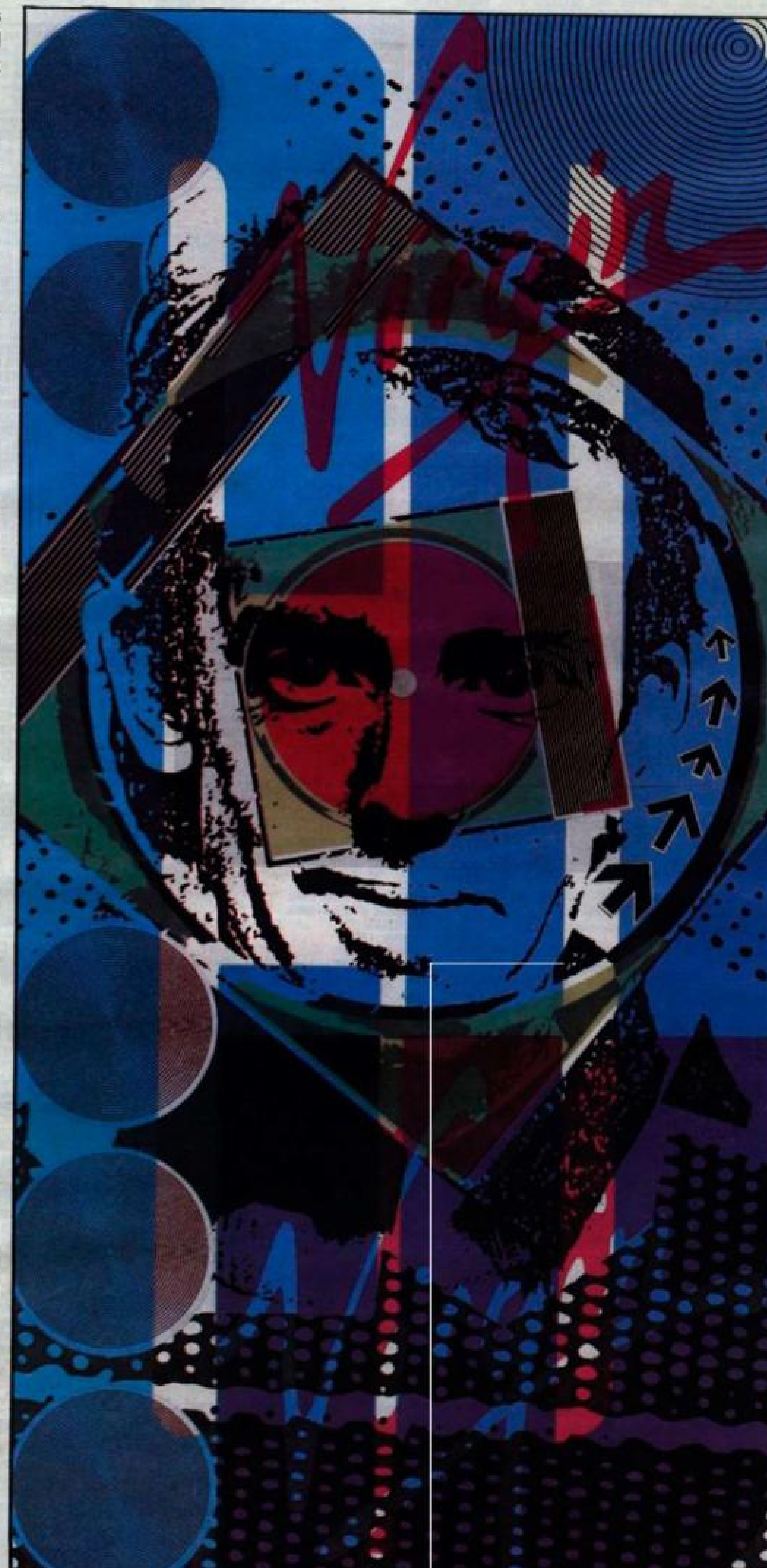
Unfortunately, even if the hardware is there, the software is not. Editing is still a very tricky business and the project has already taken up a year of Virgin time. At least another six months of development look likely. At present, the video concentrates on the Antarctic section of the expedition. The program editors have ninety hours of film and many hundreds of slides to play with.

The idea is to present schoolchildren with the choices faced when undertaking such an expedition. What sort of snowmobile, for instance, should the party take?

The children are asked to select either a heavy or a light vehicle; if they choose the former, they see a snowmobile crashing through the ice due to its excessive weight (the editors were lucky in having footage of the experimental expedition which tested alternative ideas for the expedition proper, thus offering a number of selections for a CD-I program).

Different skill levels will be built in to make the Antarctic project applicable to several age groups. The pedagogical intention is educating children in matters of logistics and group politics. With a number of different roles to play, it should fulfil Alexander's prediction that CD-I will make learning so much fun that it will not even seem like learning.

In the present, we do of course have CD audio already with us. Following on from that is CD video. The first CDV single is likely to be out in the spring of 1989 in the United States and the following winter in this country. It is Nick Alexander's intention that Virgin will be there first.



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AMSTRAD HAS REDUCED DRAMATICALLY THE PRICE OF PORTABLE PC-COMPATIBLES WITH ITS PPC RANGE. THE QUESTION IS, WHO WILL BUY IT? AMON COHEN LOOKS FOR SOME ANSWERS.

The Amstrad portable PC is on its way. The price of the PPC range will start at £399 plus VAT. thus undercutting the nearest competition by £300.

Alan Sugar announced the prices in London the week before Comdex in Las Vegas, the site for the American launch of the product. Patriotic reasons were at work – Amstrad has experienced flak previously for not releasing the PC1640 and other machines in Britain first.

The low price of the PPC range looks as if it will move the portable into a mass market. Top of the range is a 640K machine with two disc drives and a modem for £599; the 640K single drive unit with modem is £499; the 512K double drive machine is also £499 and the 512K single drive is £399. All prices are exclusive of VAT.

The machines have a number of interesting features. The built-in Hayes-compatible modem on the PPC640 models will certainly make them useful as portable communications tools. Also new is the full 101-key keyboard, rather more than on the scaled-down versions found on most portables.

Power can be supplied from five sources – the standard battery and AC adaptor naturally are two of them but other possible sources are the power supply from an Amstrad monitor, an expansion box and a car cigarette lighter adaptor.

Portability

The main areas of doubt about the PPC seem to be with the screen and the weight. The screen is a 640 x 200 pixel supertwist LCD panel, adjustable to six viewing angles. It does not look very pretty, as Sugar tacitly admitted when he told journalists: "People are screen mad. If you can read what is on the screen, that is all that matters. We have tried to make the screen as close to a cathode ray tube as possible."

The weight of the PPC is 12lb. which does not qualify it as a lap-top. Amstrad's controversial wisdom is that it is not worth sacrificing usability for extra portability, but once batteries and a few cables are thrown in, the bag which is included free with the computer will be a mighty burden to shoulder.

Bundled software has not yet been finalised, mainly because Sugar has not yet been able to find anything sufficiently cheap. All that is certain so far is the inclusion of MS-DOS 3.3.

The PPC will first be on sale to the public at the *Which Computer?* show in January. Sugar declines to state exactly how many he intends to sell (forecasting is "dodgy territory", he says), but is looking for ultimate sales figures of several hundreds ofthousands.

Screen

This is bold, perhaps wishful, thinking, on the part of Sugar. While he is to be congratulated for his endavours in reducing the price of portables to the extent that private individuals can afford one, it remains to be seen whether it is the type of portable people want.

If a person is not involved in big business, he might not want the relatively heavy-duty processing power of the PPC. What they will want instead is proper portability, something about the weight of, say, the Z-88. Amstrad has opted for the heavyweight – in both senses of the word – solution and this may prove fatal.

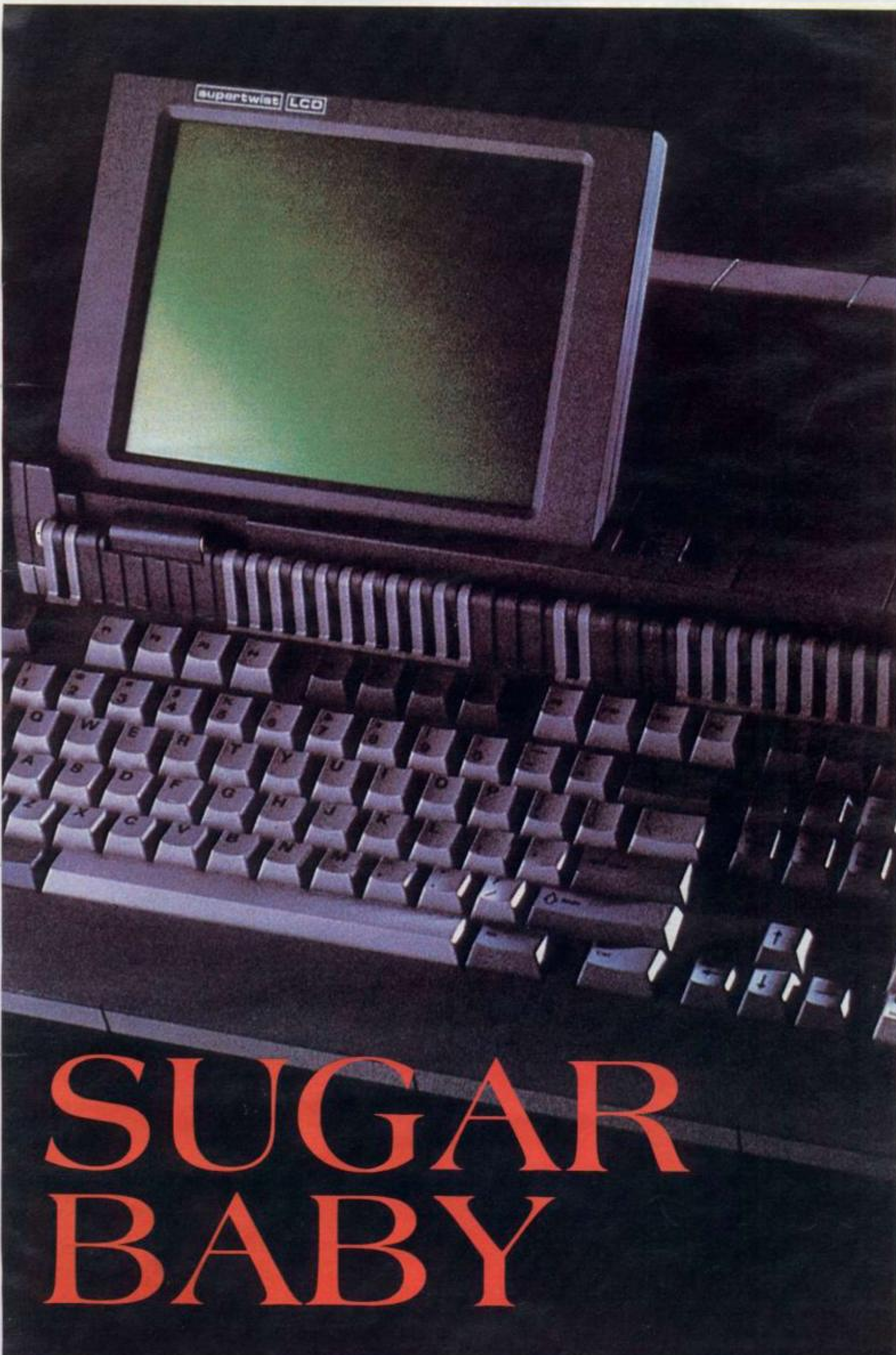
It may be the Z-88 with which the PPC will be compared. Both were on display at Comdex and it was Sir Clive Sinclair's machine which won the popular vote. Weighing only 2lb., computing will not be any more portable than that for some time. It is not PC-compatible, of course, but for the home market that might not be of vital importance.

In the corporate market, PC-compatibility is much more relevant but here too, the PPC might be out of place, simply because it is made by Amstrad. Snobbery is as prevalent in high technology as anywhere else and an Amstrad might be regarded as a poor man's computer. More upmarket names such as Compaq, Zenith and Toshiba are unlikely to be harmed by the PPC in the upper echelons of the business world.

● **The Amstrad PPC weighs 12lb. and has a 101-key keyboard.**

Some of the major retail chains are clearly uneasy about the new Sugar baby. Boots has said that it will not be stocking the portable "purely for business reasons". Computer buyer for W.H. Smith, Ian Laurie, has not yet decided whether to take it.

Ultimately, the greatest advantage of the PPC might be that it will result in a much-needed reduction in the price of portables, thus making previously prohibitive portables more accessible. For the moment, however, there is no doubting that Amstrad will sell at least a few buckets full. Despite all the reservations expressed, the £399 price is impressive. The only portable which can compete is the Z-88 but in the field of PC-compatibles the PPC is on its own. Add to this the exciting innovations like the Hayes-compatible modem on the 640K models and there is sufficient attraction to make it look at least half a winner.



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OPERATE (L)INE OR (W)ORD                      (W)
AUDIT TRAIL ON (N) OR OFF (F)                 (N)
IGNORE UPPER/LOWER CASE Y/N                   (Y)
WHOLE WORDS ONLY Y/N                          (Y)
(C)ONFIRM OR (A)UTOMATIC                      (C)
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SEARCH FOR (                                    )
REPLACE WITH (                                  )
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MIKE GERRARD VISITS TOP ADVENTURE PROGRAMMING TEAM MAGNETIC SCROLLS.

ADVENTURE PLAYGROUND



● A screen from *Jinxter*, the latest Magnetic Scrolls production.

Two years is a long time in computing, and in the adventure world. At the end of 1985 there was a new computer whose power had stunned journalists at its press launch, and there was also a new text-only adventure for the same computer which was picking up equally enthusiastic praise. The computer was the Sinclair QL and the adventure was *The Pawn*. The adventure was the start of one company's success story, the computer the start of another company's decline.

At that time there were two software companies which could stake equal claims to being Britain's best adventure house. Level 9 had just released *Red Moon*, the latest in a string of best-selling text-only games like *Colossal Adventure*, *Snowball* and *Lords of Time*. But Level 9 had concentrated purely on the UK market which meant that every adventure had to be capable not just of fitting into a Spectrum but also into a 32K Atari or BBC. The Austin programmers had worked wonders in cramming large-scale adventures into these now small-scale machines, but this particular path was inevitably going to lead to a dead-end as the UK micro market creaked slowly towards the American acceptance of disk-based games as the norm. **VERB-NOUN** input was the level of the Level 9 parser at the end of 1985.

Melbourne House could claim to be Number One on the strength of having produced the best-selling adventure ever: *The Hobbit*. This was the first adventure to have graphics. Even if you don't count that as a particular virtue, it had another bonus in its more complex parser which could cope with sentences like **SAY TO BARD, "SHOOT DRAGON"**. It could also crash at the drop of a bug by typing in a simple word like **DO**, but in parsing terms at least it was quite a step forward. Melbourne House produced other successful adventures like *Hampstead* and *Sherlock*, but through publishing books, utilities and arcade games as well, they could hardly maintain a place as the top adventure house and they certainly lost their way in adventuring terms, lacking the thrust of a company dedicated to adventures, like Level 9 or Infocom.

Enter, then, Magnetic Scrolls. This was the small new software house which had written The Pawn and whose arrival gave what can be seen with hindsight as a much-needed shake-up to the British adventure market. Magnetic Scrolls ignored tape-based games and the confines of two-word input, duly reaping the rewards. For a company with such a high profile, it is surprising to think that in these last two years it has still released only two adventures, The Pawn (which it now admits itself is flawed in many ways) and its more successful follow-up, *Guild of Thieves*. This recently won the British Microcomputing Award for Game of the year in 1987 and proved that Magnetic Scrolls is not a one-hit wonder. It must know as well as any company, though, that the world is littered with two-hit wonders, three-hit wonders and so on, and that you're only ever as good as your letest release.

With the imminent arrival of its third game, *Jinxter*, I went down to see it at Head Office in South London, an office which looks like a software house should: no plastic, glass and potted palms but very much a working establishment: three small rooms crammed with computers, manuals, adventures and other signs of the presence of programmers. Some future archaeologist will no doubt sift through the earth, look at the TV camera and say: "Und here ve haf ze overflowing ash-trays, ze coffee cups, ze coke cans, ze hondreds of sirteen-amp plugs and ze remains of hondreds of little plastic floppy sings zat can only mean vun sing . . . we are standing on ze site of ze burrow of a group of primitive computer programmers."

Before looking at Jinxter, I spoke to Magnetic Scrolls' Managing Director and co-founder, Anita Sinclair. I began by asking her who were the other original Scrollspersons?

"Ken Gordon is what you might call my other half, and then there's Hugh Steers, who's my other half but not quite. Ken and I have known each other for yonks. When he was leaving school, he decided he wanted to write some software. I'd been writing sbftware too on a freelance basis, so we decided to do something together. Ken turned up one say with Hugh and said, 'This guy can write parsers'. We all sat down in my flat on the night before they were due to take their 'A' levels and they showed me this amazing parser. It turned out to be the basis of the one used in The Pawn.

"That wasn't the first adventure we wrote, though, as we did one first just for fun based around this wonderful willie. That might need a bit of explaining. Without going into all the details, I have an occasional problem with words in that I sometimes can't think of the word I want and get round it by substituting the word 'willie'. So if I say to someone, 'Can you pass me the willie', anyone who's used to me will know I mean the coffee cup or the box of disks or whatever. We wrote an adventure based around this amazing willie, which could do all kinds of wonderful things about which I'd better not go into too much detail."

I didn't ask if the game had graphics or not, though I'd have thought that instead of Jerry Lee Lewis turning up in The Pawn, it ought to have been Wee Willie Harris. And if Anita had been responsible for the parser no doubt we would all have ended





Anita Sinclair of Magnetic Scrolls receiving the BM Award for Game of the Year 1987.

up planting the willie in the plant pot. As yet, though, in the history of Magnetic Scrolls, there was just Anita, Ken, Hugh, a parser and a wonderful willie. Enter stage left, Rob Steggles.

"We decided we needed a serious writer," Anita explained, "to write a proper adventure which would make full use of this excellent parser we had. Ken came back with Rob one day. He did The Pawn, worked on the parser and is effectively the author of The Guild of Thieves. This was all round about the end of 1984 and we then basically had what become The Pawn, which was published in late 1985. We backed the QL partly because of the machine that it was and also because we though that as a new company we could generate maximum publicity by coming out with something we knew was different for a machine which was also new and different. Then Sinclair Research went under and it was really the Atari ST version of The Pawn that made us successful."

It not only made Magnetic Scrolls successful; The Pawn also, quite literally, made Rainbird. The relationship between Rainbird and Magnetic Scrolls came about because Anita had written some arcade games which she saw as potential budget releases and took them along to Firebird's boss, Tony Rainbird.

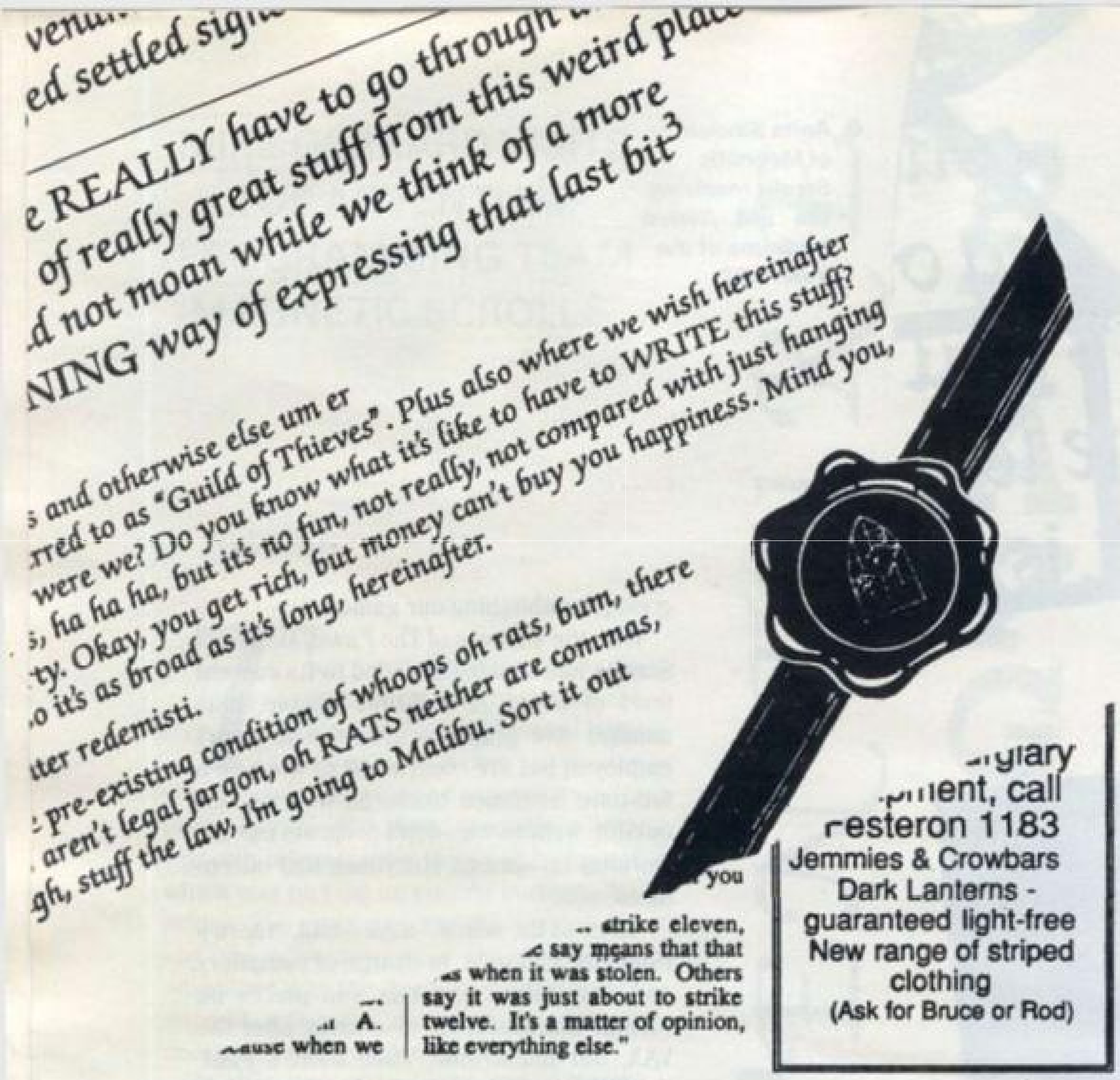
"I'd written those games with the intention of filling a financial gap. When I wandered down to show them to Tony Rainbird, he sniffed a bit and said, 'Well they're OK,' but he wanted to know if we had anything else, so while I was there I demo'd the QL Pawn to him and he loved it. He said he'd buy all my budget games if I gave him the rights to all the other machine versions of The Pawn. There were some changes going on at Firebird at the time and Tony's Rainbird label was set up specially to publish The Pawn and other good quality products. We don't have any formal contractual arrangement with Rainbird, but we're with them by desire, if you like, as they do a good job publishing our games.

With the success of The Pawn, Magnetic Scrolls has slowly expanded to its current level of about 12 full-time people, plus another five graphics artists who aren't employed but are contracted to work on a full-time freelance basis, as well as four outside writers who don't program but are working on various storylines and adventures.

"Here at the office," says Anita, "there's Doug, for instance, in charge of compilers and assemblers and bits and pieces on various machines. He also looks after the VAX, our mainframe. Then there's Paul, the little fuzzy creature you'll see wandering around. He's very much involved with Jinxter and does our conversions for the Atari 800 series and the Apple II. As for me, I tend to look after the 68000 machines with Ken and do all the publicity work and so on, though at the moment I'm acting as the emergency squad, doing a lot of work on Jinxter, which seems well and truly jinxed."

Before loading up the least-jinxed version of Jinxter, Anita gave me a glimpse of her adventure-writing system. I saw the amount of detailed information which goes to make up one object, in this case the infamous swag bag from The Guild of Thieves. This not only has the obvious attributes, like a weight and the fact that it's a container, but the program also specifies how many objects it can contain, the chances of it breaking if you drop it (obviously zero in the case of a bag, but higher up the scale for vases etc), the likelihood of it catching fire if you set a match to it and even its edibility. All objects in the game are given this treatment, so it's unlikely that you'll be able to set fire to a bottle of water or eat a rock in a Magnetic Scrolls adventure.

The adventures are originally written without any problems in them. This makes it possible to walk through the game and bug-test that aspect of it before the high-level complexities, known as the Specials, are put in. One aspect of Jinxter which is going to be different is that the player too will be able to walk through almost all of it if he or she wishes, thanks to a character called The Guardian, who will no doubt before very long be affectionately referred to as The Graunlad.



The Guardian is someone we've all wanted to meet at some point. If, for instance, you come up against a dragon you spend days or nights struggling to get past (perhaps trying to think of the right combination of words, maybe?), you can summon up The Guardian whose remarks or actions will give you first of all a veiled hint as to how to deal with the problem, then, if you insist, take you past the problem, but without revealing how it's done. In order to pay for this rather sophisticated helpline service you have to sacrifice some of your luck, and you'll need all your luck intact when you come up against the brick wall at the end of the game, otherwise you'll be unable to finish the adventure.

The cheats will no doubt whizz through all the problems with the help of The Guardian and claim to have got to the end of the game first, and the purists will no doubt criticise Magnetic Scrolls for putting this feature into the game, but from what I've seen I reckon it is an enterprising feature especially useful for beginners. More experienced players can ignore The Guardian completely and play the game their own way. Signs of success in Jinxter will not be how far you've got, but a combination of what your score is and how lucky you feel.

Jinxter itself is lucky to see the light of day, as Anita admits that it hasn't been the happiest adventure for them so far.

"It really has been jinxed; so far we've taken about a thousand bugs out of it. Everything seemed to go wrong that possibly could. I think if you'd taken a poll at Magnetic Scrolls a few months ago about whether we would continue with it or not, despite the work we'd already put into it, just about everyone would have voted to drop it completely. When the first 'finished' version came in, I felt like picking it up and giving it a good shake. It was rather twee, one major fault with it. For instance, one problem required you to get past a dragon and to do that you had to give it a little rubber dragon to play with to distract it. We felt we could live without that kind of thing, but I thought I saw enough good things in it to make it worth rescuing so we set about sorting it out, one thing being a complete rewrite. We went over every word, something we asked Michael Bywater to do for us."

Michael Bywater will be a name well-known to *Punch* readers, and I for one have been a great fan of his work since it first appeared several years ago. He did a lot of behind-the-scenes work on Infocom's *Bureaucracy*, which was not the sole creation of Douglas Adams as was implied when the game first came out. It was Anita who first introduced Michael Bywater to Infocom about a year ago:

"I received an invitation to go to the Infocom Christmas party last year, and when something like that arrives you don't need asking twice, so I went over there. They showed me a version of Bureaucracy and I felt, as they did, that it needed more work before it could be released, although no-one could think who might be able to do it. By then, Douglas Adams was already busy on something else. In the New Year I went on to visit the CES Show where I bumped into Michael and thought that maybe he was the right person to help Infocom out on Bureaucracy, especially as he was already friendly with Douglas Adams.

"Michael phoned them, met them and arranged to work on the game. When he got back to England, he rang me to thank me for the introduction and said, 'If there's ever anything I can do for you . . .'. I immediately said he could write and adventure, which he is doing, but first he wrote *What Burglar?* magazine for us and the back of the box for Guild of Thieves. He's also writing another adventure for Infocom, called [censored] and we tend to share him with Infocom. I think he prefers our rather shambolic, friendly approach to Infocom's flashy and business-like offices, but they can offer him something more, like money!

"As I said, he's completely rewritten the text of Jinxter for us so that it is now very entertaining and amusing. He has also reworked lots of the problems and put in several extra responses, the kinds of thing which I think make a game worthwhile. I won't say much about them as the pleasure is in finding them for yourself, but as an example you no longer need the rubber dragon to solve the problem of the baby dragon, although you should definitely try playing with the rubber dragon in the bath. These responses have given us lots of headaches because of the extra code involved, but we're determined to squeeze as many of them in as possible."

With Jinxter hopefully finished by the end of November, what else has Magnetic Scrolls in store for us in the not-too-distant future? By March we should see the new game from Rob "Guild" Steggles, known as *Assassin* for the moment even if it won't be called that when released. In it you play the part of a commodity broker for whom everything goes wrong. Is this the first Yuppie adventure?

This will be followed two or three months later by an adventure whose working title is *Fish* and which is definitely different though I'm sworn to secrecy on its intimate details.

"We've set ourselves a limit of about four games a year," says Anita, "as we'd rather do four games and make them twice as good than try to shove out eight games a year which are only so-so; something we could easily do.

"Like Infocom, we hope to aim for quality rather than quantity. I do think Infocom is the only opposition as far as we're concerned, but that's friendly opposition as we're on very good terms with them. We just want our games to be better, that's all! I hope it doesn't sound arrogant, but I do think we've got no rivals in Britain as far as adventures go, and there's only Infocom in the States."

Well, a remark like that would have sounded arrogant two years ago, but, as I said at the start, two years is a long time in computing.

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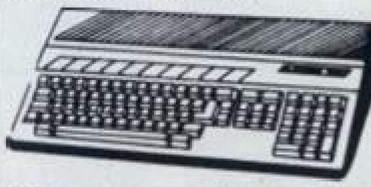
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YC1

Bureaucracy competition

Our apologies for the delayed announcement of the winners of this competition, but there were so many forms to be signed in triplicate and such a welter of gaming licences to be applied for that earlier action was not possible. Still, that's *Bureaucracy* for you.

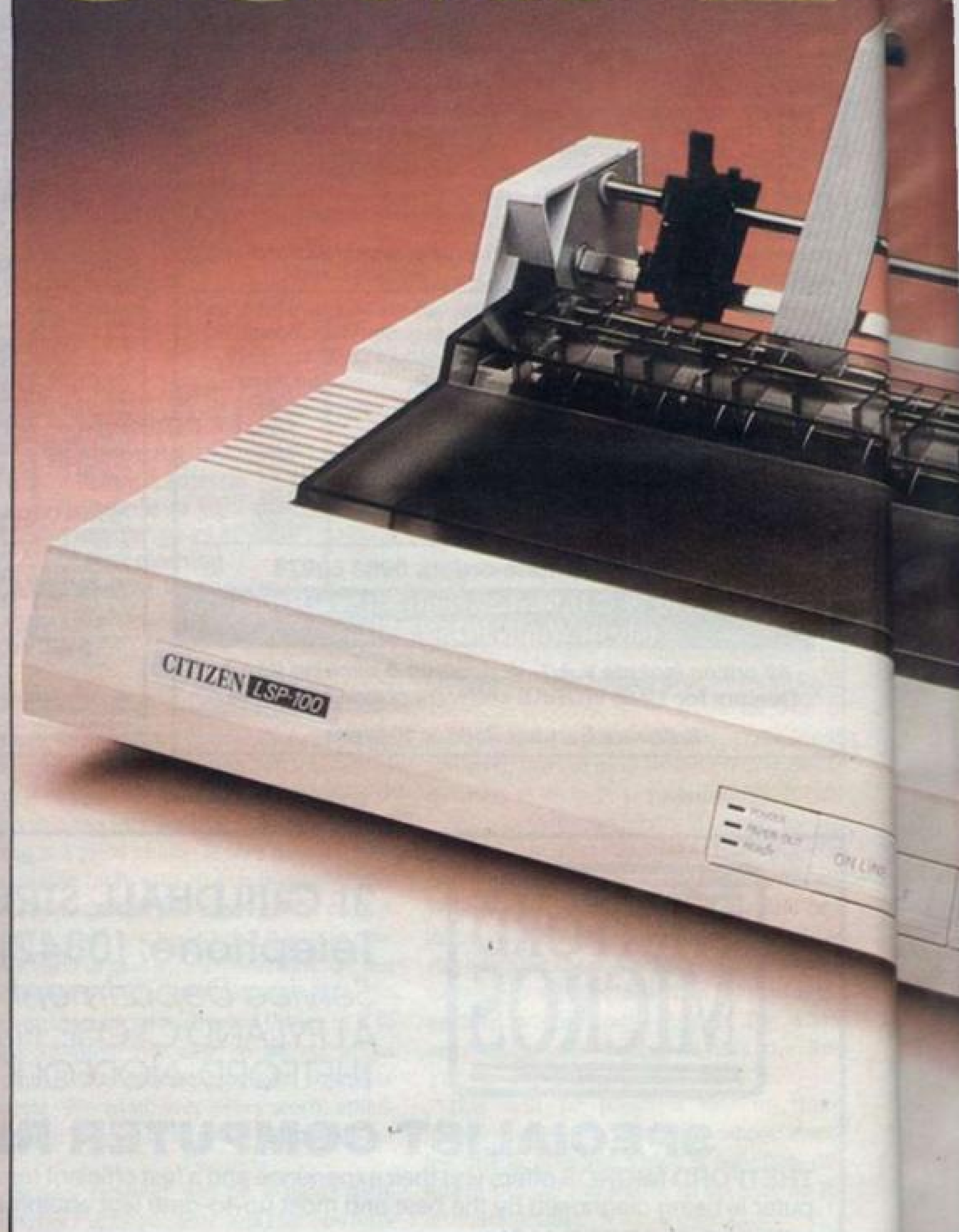
In the end, the lucky applicants to receive the official stamp of approval were: R D Hepple, Cheltenham, Gloucs. N Burns, Edinburgh. Dun Homer, Hales Owen, West Midlands. J Tyrell, Anfield, Liverpool. S Rider, London. Ian Cairns, Clydebank, Glasgow. Michael Hall, Ottery St. Mary, Devon. S Chipman, Lyme Regis, Dorset. Steve Wood, Wombourne, Staffs. J S Parker, Esher, Surrey.

Minter competition

Your Computer must also apologise for the non-appearance of the winning names and addresses for the competition in the August issue. This was due to the list being eaten by one of Alan Minter's llamas. Fortunately, the guilty animal has now "passed" back the missing papers and our team of Red Indian trackers has deciphered the names of the winners. Each of the following will shortly receive a *Minter Classic:*

Reid Flory, Huntly, Aberdeenshire. Alan Cook, Newton Mearns, Glasgow. Mrs. T Dutton, Biggin Hill, Kent. J Fitchie, Edinburgh. P Sunderland, London. David Cookson, Taunton, Somerset. Robert Tomlinson, Nykvarn, Sweden. Jason Dobbs, Newton Abbot, Devon. S J E Reeves, Solihull. James Tyrell, Anfield, Liverpool. Robert Thomas, Kirkwall, Orkney. T Knowles, Great Sutton, South Wirral. Stephen Answer, Pinxton, Notts. S Compston, Armagh. Adrian Wright, Rugby, Warwickshire. Miss E M Dron, Sutton, Surrey. Andy Davies, Bideford, Devon. Peter Franklin, Maesglas, Newport. Joanne Rigby, Barnsley, South Yorks. A G Northwood, Andover, Hants. Daniel J Bell, London. Ove Oldenberg, Vergarda, Sweden. Jason Robba, Catalan Bay, Gibraltar. Karl Green, Middlesborough, Cleveland. Stuart Barriball, Sopcote, Leicester. Steven Bacall, Southgate, London. Mrs. Carol Buttle, Gorse Hill, Swindon. M J Davies, Llandeilo, Ms Andy Harrison, Stapley, West Yorks. D Lodge, Little Eaton, Derby. Ransit Kumar Khutan, Willenhall, West Midlands. Hans-W Schnieder, Unnalwestf, West Germany. Thomas Hotze, Bruxelles, Belgium. W C Teasdale, Stockton-on-Tees, Cleveland. Catherine Welsh, Glasgow. Toby Gosnall, Colchester, Essex. K Guy, Gillingham, Kent. Peter Rhodes, Draycott, Derby. E Cook, Cwmbran, Gwent. David Hall, Wakefield, West Yorks. Alistair May, Elgin, Moray. Roger Tily, Portishead, Bristol. A M Barnes, Ventnor, Isle of Wight. D Walsh, Petersfield, Hants. M J Lyons, Burnage, Manchester. D W Jones, Marlow, Bucks. S C Penfold, Basingstoke, Hants. Reg Collings, Penryn, Cornwall.

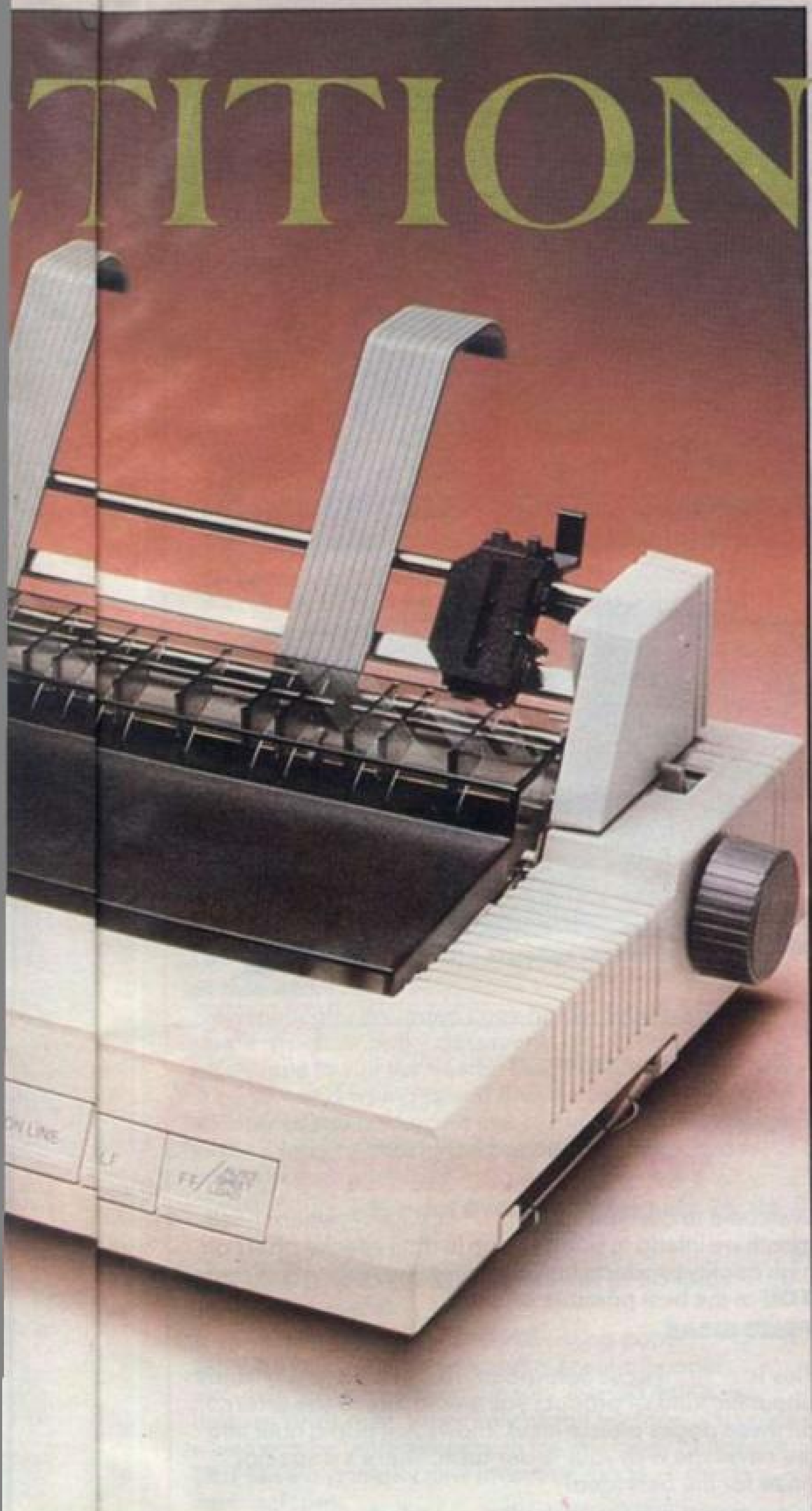
COMPET



Your Computer is pleased to announce a very special competition in conjunction with Citizen (Europe) Ltd. This month, the prize is not a handful of computer games but a brand new Citizen LSP-100 printer, fresh from the company factory.

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Citizen is also offering two no less splendid consolations in the form of wrist watches from its parent company Citizen Watch, the world's largest supplier of time pieces.

To win, all you have to do is answer the three simple questions below. Each is multiple choice – select the alternatives you feel to be correct and ring the appropriate letter on the entry form. When you have done this, fill in your name and addres and send the form to Printer Competition, Your Computer, Greencoat House, Francis Street, London SW1P 1DG. All entries to reach us by Thursday 21st January. We regret that the competition is restricted to U.K. residents.

Competition Rules

The winners of the competition will be the persons who send the first all-correct entries drawn from all those received before the closing date of the competition.

The names of the winners will be announced in the April issue of *Your Computer.*

All entries must arrive at the *Your Computer* offices by Thursday 21st January 1988.

Each person must enter the competition only once.

Entries to the competition cannot be acknowledged.

No employees of Focus Investments nor their agents or close relatives may enter the competition.

The decision of the Editor in all respects of the competition will be final.

No correspondence with regard to any aspect of the competition will be entered into.

Focus Investments assumes no responsibility or liability for any complaints arising from this competition.

WIN A CITIZEN PRINTER!

1. Who directed and starred in the film Citizen Kane?
   a) Michael Caine b) Orson Welles
   c) Joseph Cotten d) Paul Newman
2. Citizen Robespierre terrorised the aristocracy during the:
   a) American Revolution
   b) English Revolution
   c) French Revolution
   d) Industrial Revolution
3. The first book to be printed in England was:
   a) A Latin dictionary b) Plato's Republic
   c) A Jeffrey Archer novel d) The Holy Bible

ENTRY FORM

1.	**a**	**b**	**c**	**d**
2.	**a**	**b**	**c**	**d**
3.	**a**	**b**	**c**	**d**

Name: ____________________

Address: ____________________

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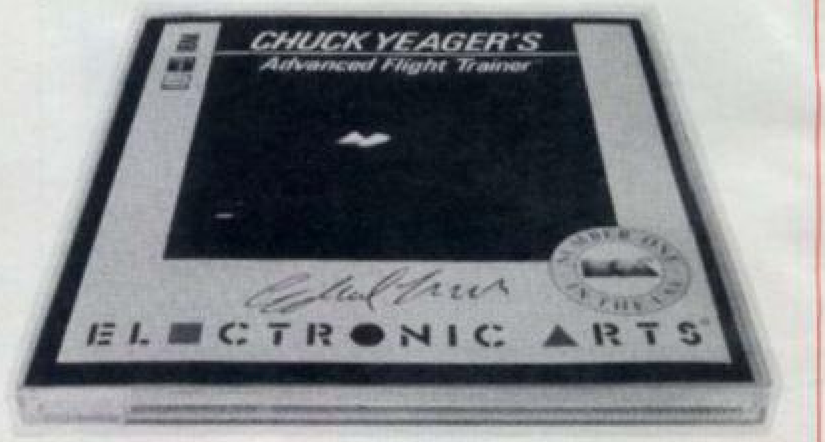
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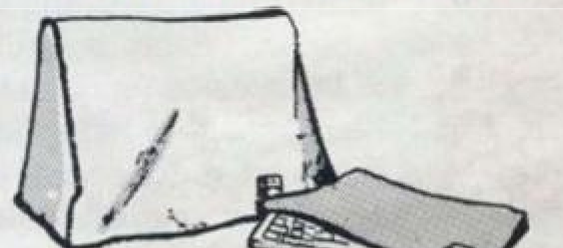
PRIZE IDEAS

This is Focus Salespoint, so if you have any ideas about the kind of product you would like to see offered on these pages please let us know! Just pop a note into the envelope with your order form. There's a special prize for the best idea!

In the meantime, we wish all our readers

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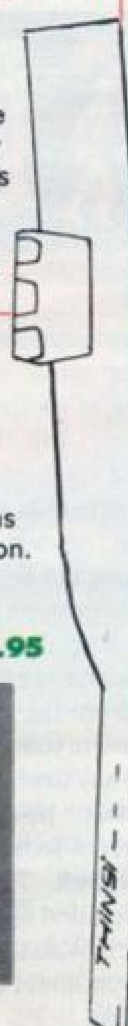
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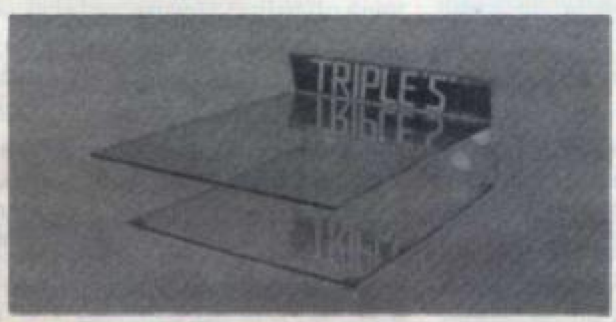
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SOFTWARE RELEASE

Dark Sceptre

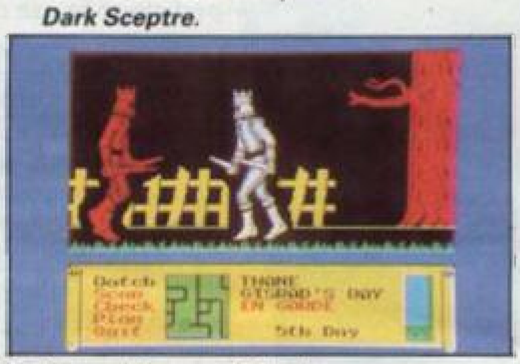
Mike Singleton made his name with *Lords of Midnight* and its follow-up, *Doomdark's Revenge*, but we've been waiting a long time for another game of equal quantity. This is partly due to Mike's heavy involvement in the infamous *Star Trek* game, which has been 'imminent' for about two years now. He did produce a Swords and Sorcery game for Melbourne House last summer, so eminently forgettable that I've forgotten what it is called, but with Dark Sceptre he's definitely back on the right track and along with the rest of the programming team, Alan Jardine and David Gautrey, he's come up with the kind of game that seems to cram at least 128K of code into a 48K machine.

Come with me to the Isles of the Western Sea, ruled by the Lord of the Isles. In an attempt to defeat the invading Northlanders, the Lord of the Isles forged the Dark Sceptre of the title, a weapon of awesome power. Unfortunately this fell into the hands of the Northlanders who made use of its might. From then on they became known as the evil Lords of the Shadow.

It is your job to organise the various forces that are wandering round the Isles in an attempt to defeat the Lords of the Shadow by destroying the Dark Sceptre. Some of the forces may not want to be organised, of course, and some may be recruited by the Lords of the Shadow before you can get to them, but you'll just have to do the best you can.

You'll also have to play Dark Sceptre on a colour TV because the seven sets of forces are each shown by a different colour. Your own are white, naturally, and the Lords of the Shadows are red, with five other teams of warriors you should be trying to turn to white . . . or leave in a pool of red blood on the floor. Killing someone from another team means that they cannot join the opposition, but it also means that they cannot join you, either, and you are going to need all the strength you can get if you are to stand any chance at all of destroying the Dark Sceptre.

● Below: The Watch option in *Dark Sceptre*.



● Below: Beware of the flowers . . .



So how does the game operate? Very simply, which is one of its virtues. You just need a joystick or five keys on the keyboard, for left-right-up-down-select. The bulk of the screen is given over to graphic displays of the current locations, which are nicely done but kept necessarily simple. You can flip through the hundreds of locations making up the Isles by using the movement options, and by choosing the **SCAN** option from the main menu at the foot of the screen you can see a full map of the Isles at any time.

Naturally it isn't just background graphics in the current location; there are the characters as well. These are very large and highly detailed sprites who are beautifully animated. With the exception of your own men, they wander around under the program's control.

Recruiting and fighting goes on all over the map, whether you're there to see it or not, but if you hear the clash of swords it means that there is a fight going on somewhere. By selecting the **WATCH** option, that location can be switched to instantly. You can't interfere in the fight, and only one takes place at a time, but when the

Price: £7.95
Machine: Spectrum
Publisher: Firebird/Beyond

going gets tough, you will be moving straight from one fight to another, should you choose to watch them all. The outcome is governed according to each warrior's characteristics, and if they happen to be of equal strength, cunning etc., the aggressor will ultimately come out on top.

Each warrior in each team has different qualities, and the core of the game lies in deploying your forces to make best use of individual skills. Only a Mystic, for example, can cast magic spells, while other men in the team might be strong, or cowardly, or cunning, or persuasive, or a combination of these qualities.

Commands are issued to the characters using the **PLAN** option, and the more complex a warrior's characteristics, the more commands he is capable of absorbing at one time. You might instruct a simple but strong character to kill any enemy he finds, or to kill a specific warrior on the opposing team. The weaker characters you can perhaps instruct to attempt to recruit other men to your cause, or send them off to find the swords, sceptres and other objects scattered about the land. Some characters will accept up to three commands (all input via menu screens with lengthy sets of options), so you can pack them off to find a sword and seek out a particular enemy to kill, or find a neutral character and attempt to recruit him.

The number of options is immense. As you flip from screen to screen to inspect the proceedings and check out each warrior's plans and status, you really do feel that all this action is constantly going on around you, with you in the thick of it trying to organise your troops.

Dark Sceptre is hard to categorise, easy to get into and should take months to master. It is also incredibly cheap, the kind of quality game that you might expect to see put out at £14.95. At £7.95 it's the bargain of the year. Every Spectrum should have one, without doubt, and it's good to see Mike Singleton back at his best.

Mike Gerrard

Nord and Bert

Price: £29.99
Machine: IBM PC, Apple II, Macintosh, Atari ST, Commodore Amiga
Publisher: Infocom

Just for a change, Infocom has come up with innovative products this month. Not only has it released the world's first adventure romance (see the review of *Plundered Hearts* by Christina Erskine) but it has also given us the first post-structuralist computer game.

Nord and Bert Couldn't Make Head or Tail of It is also the first Infocom release to consist of a series of short stories and to contain built-in hints. The overall theme is that the town of Punster has been overwhelmed by a plague of malevolent language. Reality has disappeared overnight to be replaced by rhetoric. The way to get anything done now is not by physical action but by verbal gymnastics.

This might sound confusing and lugubrious but in practice it makes for a highly original game. Take, for instance, the first story, Go to the Shopping Bizarre. A visit to the local supermarket demonstrates clearly how the language plague has affected Punster. In this case the treacherous homonym has wreaked untold damage. Each shopping aisle contains the most extraordinary objects. The dessert aisle is blocked by a chocolate brown-coloured moose with enormous antlers. Type in the word **MOUSSE** and the beast transforms magically into a pudding of that name and you win a Brownie point. Now look into the freezer and you find a set of numbers jostling excitedly with one another. Look more closely and you find that the numbers are all the same: 22/7. Type in **PIE** and a splendid fruit tart appears before your very eyes. Have another Brownie point.



● Above: We all knew Infocom was a good label, but it is starting to make some extravagant claims for its games.

● Below: Nord and Bert visit the funny farm.



A further innovation is that a map is not needed for Nord and Bert. Locations to which it is possible to move are listed at the top of the screen and the player merely has to type in that location to be transported there. Purists may sniff at that but they will positively gasp at the inclusion of on-line hints. These tend to be dead giveaways, often stating the exact command necessary to achieve an objective.

For a newcomer, however, the hints and the lack of mapping will be invaluable aids in introducing them to the Infocom style. Besides, it would be underestimating that fine publishing house to assume that there was not a great deal more complexity in Nord and Bert than is covered by a few help sheets. Eat Your Words, for example, is an episode reminiscent of Douglas Adams' *Bureaucracy*. It is set in a restaurant with a truculent waitress who will not serve up any food. A diet of clichés (such as reading the riot act affixed to the wall) must be force-fed to her before she will yield any dishes but discovering exactly what those clichés are is not at all easy.

To play the last story, Meet The Mayor, a password from each of the other stories is required and these are only issued when that particular section has been successfully completed.

Nord and Bert takes less time to solve than any of its Infocom predecessors and the only extra goodie this time is a book of cartoons, but it is still worth every penny it costs to buy. Readers given to philosophising may care to reflect that what all adventure games really do is to deal with language. The truth is that the player is typing words into a computer, not actually doing battle with a dragon, talking to a thousand-year-old Egyptian soothsayer or whatever. Nord and Bert acknowledges that fact and makes the player aware of it. As the text of the game tells the player when he attempts physically to bash in a character: 'the pun is mightier than the sword'.

I'll drink to that; I've never been a dab hand at slaying dragons anyway.

Raphael Sergei

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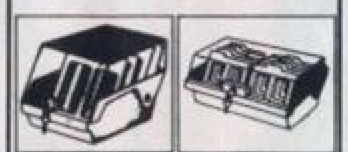
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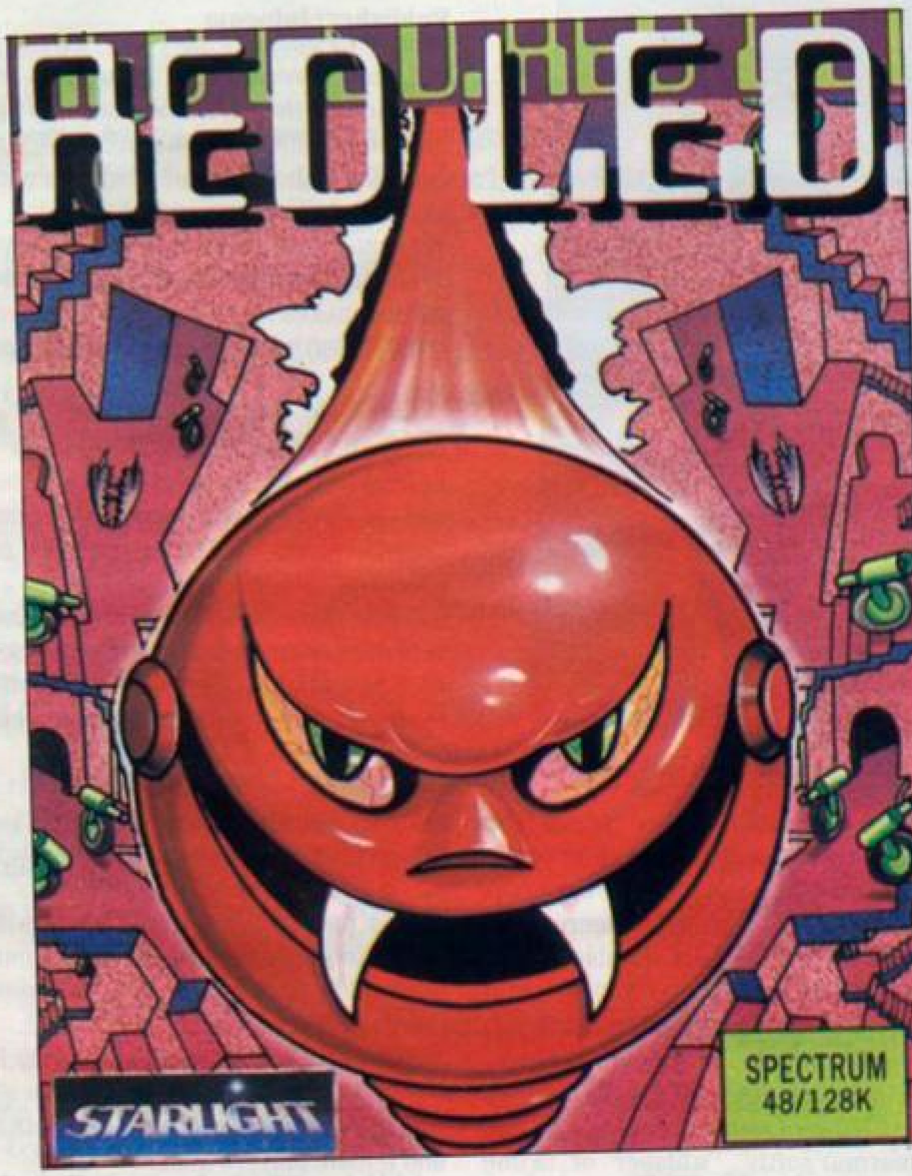
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Red L.E.D.

Price: £8.99
Machine: Spectrum
Publisher: Starlight Software





● Nice screen, shame about the noise.

● Red L.E.D. is maddeningly frustrating, addictive and great fun to play.

Red L.E.D. is set in 2379 when the Earth's resources are finally running out. Your job is to search the myriad of sloping paths in different grid locations to find the matter suppliers. To achieve this, three ZMX all-purpose battle-droids are supplied to link up the vital cosmic-interlace grid. This is accomplished by exploring each location and collecting all the supplies.

When the game is first loaded, you are given the option to define the keys. Only after doing this can you use the joystick option, which makes choosing the keys in the first place a bit pointless.

An icon of a hand is used to select which part of the grid you are going to try to activate. You must move the hand over the hexagonal grid and use the fire button to choose. When this is done, you will find yourself in the designated location. A complex of pathways is followed to find the pyramidal matter suppliers. The sloping paths have a realistic feel, with both inertia and slopes acting on the droids.

The three droids are excellent looking beasties which are well armed, so you can blast the little tanks which are out to get you. If things get really bad, a smart bomb can always be used but, of course, you have to find one first.

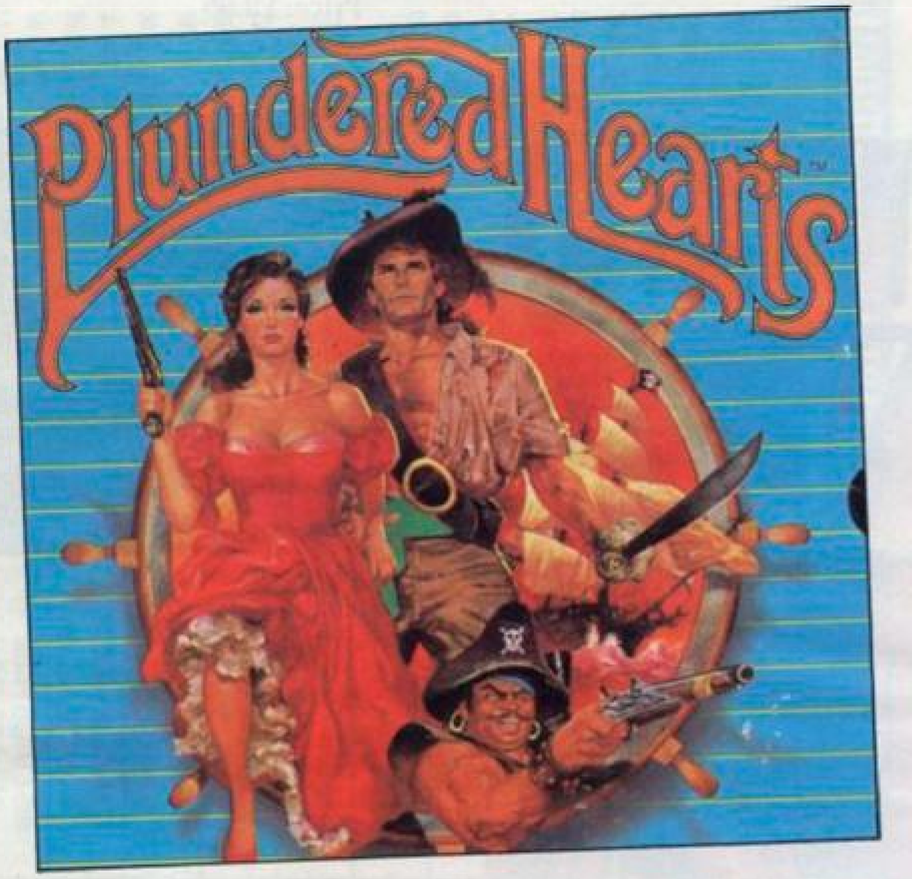
Sprinkled throughout the maze of paths are deadly skulls which sit there refusing to get blasted but are deadly if touched, sapping great amounts of your droids' precious energy. The droids can teleport around the grid by moving on to a square marked with the proverbial X. When the droid has collected the required number of matter suppliers from that particular location, the hexagon is activated and starts to flash on the grid. You must now move on to the next section of the grid.

There are no instructions and you must work out most of the game for yourself and eventually, through trial and error, you will get the hang of it. The sound is almost non-existent and was probably sacrificed to the game's excellent, smooth flowing graphics.

Red L.E.D. is maddeningly frustrating, addictive and great fun to play. It has 37 different and difficult locations plus bonus levels.

Chris Hankins

Plundered Hearts



IBM PC, Apple II, Macintosh, Atari ST and XL/XE series, Commodore Amiga: £29.99
Commodore 64: £24.99
Publisher: Infocom

Nobody can accuse Infocom of being unadventurous with storylines: it brought *Hitchhikers* to the computer very competently, it tackled other space age plots, the detective novel format and the circus. *Plundered Hearts*, however, must rate as its most risky scenario to date.

Given the stereotypic adventurer as a thin (male) figure, hunched over the keyboard and mainly interested in hand-to-hand orc combat and whether his piece of paper is big enough for the map, what could be further from his heart than the chance to play a simpering 17th-century heroine straight out of a Mills and Boon-style romance?

Author Amy Briggs, new to the Infocom stable, obviously thought there was some mileage in it. She endured "hundreds of romantic novels", according to the manual, undertook meticulous historical research and "was wooed by a dashing pirate" to get a feel for the narrative. Enough said.

Anyway, she certainly knows her stuff. The opening scene-setting screens are a good enough spoof of some of the worst excesses of the genre – plenty of hard eyes raking over damp chemises and tousled chestnut hair, for example.

You play the heroine of the damp chemise, on a sea voyage to the West Indies to visit your father whom you believe to be seriously ill. The story opens as pirates raid the ship; you have been carried off by the mad, bad and dangerous-to-know pirate captain Nick Jamison. He's the one with the rakish eyes and chestnut locks. Despite displaying all the attributes of the romantic hero, he appears to have a speech impediment. According to the text, he is incapable of saying anything – he can only "murmur softly", "whisper" or, in one astonishing passage, "he timbers" at you.

Jamison departs for more deeds of derring-do and leaves you confined to his quarters on the pirate ship, "for your own safety". This is where the story really begins and you can come into your own. The purple prose now recedes considerably and you can embark on your own quest: to avoid capture and to rescue Papa (because he's in the hands of the evil Lafond, and not so sick after all) and, of course, to finish up, triumphantly but quivering, in Jamison's arms. It is a great relief to discover that in the game screaming, swooning and trying to enlist help from big strong piratical types will get you nowhere.

The first few puzzles, concerned with the locations on the pirate ship, are not too difficult. Find a way out of Jamison's room, disguise yourself suitably so that the crew don't pillage you as soon as you put a foot on deck, prevent the ship from being wrecked on the reefs and blown up by fire in the ammunition room (there last, I might add, while the crew members do nothing about it but sit around sharpening daggers) and then get off the ship in pursuit of Jamison and his "hard sea-worn body" (which makes him sound like some sort of crustacean) and Papa. All in a day's work, really.

Later on, you get the chance to gatecrash the grand ball, cross swords with Lafond himself, discover secret passages and do battle with a hungry crocodile. There is plenty to explore and some of the essential objects are tucked away in unlikely places (luckily, your "elegant velvet reticule" soon assumes the properties of a bin liner to carry all the stuff), so thorough investigation and mapping are recommended.

The parser is, as you would expect from Infocom, excellent, and even the 'I don't understand' messages are frequently helpful, not just a succession of "whats". The text is particularly atmospheric, without being too heavy-going on the romantic novel side of things – unless Jamison's floating around.

The only real question mark over Plundered Hearts is how much appeal the romantic interest will have, for both male and female players alike.

While you can spend a fair amount of time collecting objects, going north, south, east and west (or fore and aft in the seagoing scenes, which is a nice touch) and generally doing all the things that adventurers must do, you cannot lose track of the plot. Besides which, Jamison keeps popping up to bestow you with trinkets, kisses, shivering anticipation up the spine, etc . . . plus, to be fair to him, some good clues about proceeding with the game.

Treat all the soppy bits as a good giggle and Plundered Hearts is a rattling good yarn, with neat, logically solved puzzles, some great elements to the plot – like the secret passage and how to access it – and a remarkable sense of historical atmosphere. It would definitely be a mistake to steer clear of it simply because you don't like the idea of wearing a damp chemise.

Christina Erskine

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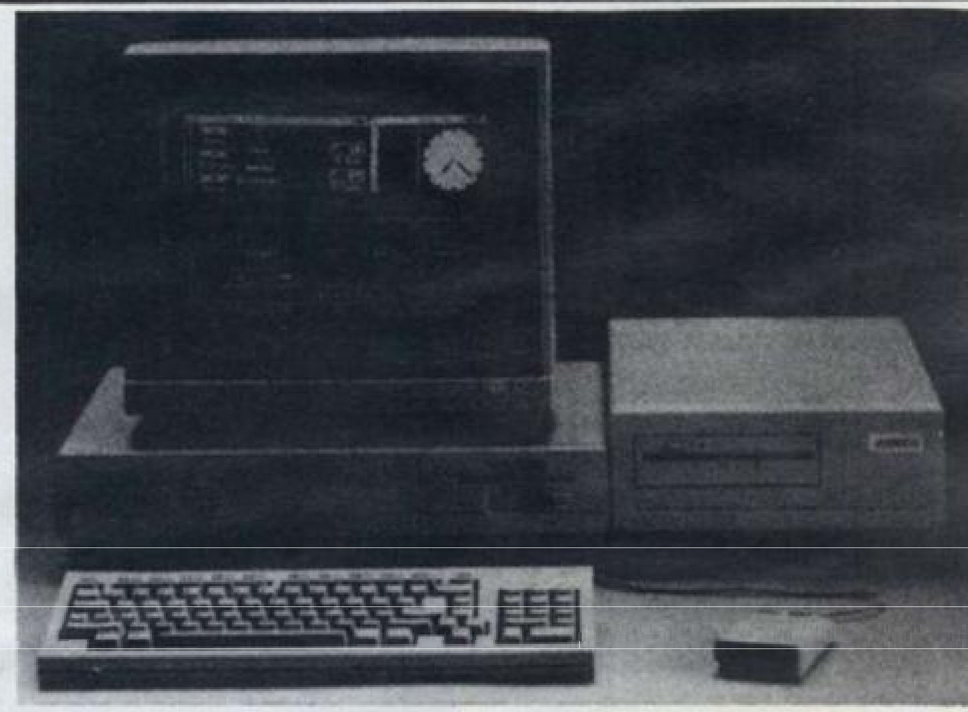
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BUG HUN

WOULD YOU LIKE TO BE A GAMES TESTER? PETE GERRARD MEETS THE BUG-HUNTERS.

You are probably all familiar with the following scene: you buy a new piece of software and rush home to the computer to load it and try it. After hours of bashing aliens or exploring strange new worlds you discover the fatal mistake – an error in the program. How does it happen, and why are mistakes not taken out before the program is released?

Companies have excuses for that kind of thing. One was first heard from a spokesman for a company which will not be named, which was demonstrating a program to a number of interested onlookers at a computer show. It was a few years ago and spreadsheets had only just begun to appear on microcomputers like the Commodore 3/4000 series.



● The Level 9 team with their latest creation, Ingrid.

When a minor error in the program became evident one of the watchers muttered: "There's a bug in that progam". The spokesman looked at him haughtily. "That is not a bug, it's a feature of the program."

So why do these things happen? In search of the great answer I spoke first of all to Terry Owen at Mastertronic. He would not admit to any mistakes in his games but in an attempt to find why things sometimes go wrong I asked him about the stages involved in seeing a game through from the idea to the final product.

Assuming that the game is from an outside source, and not a commissioned one, Owen reckons on receiving about 20 to 30 programs a week. Of those, perhaps one might eventually make it as a marketable product, by selling it as it is, by buying the idea and getting another programmer to produce the final version, or by suggesting to the original programmer that he re-write certain sections.

Another company I tackled was Tyneside-based Tynesoft which has become highly-regarded for its sports simulations and which has recently launched *Winter Olympiad 88* to the market for almost every computer in the known universe. Vic 20 and ZX-81 owners have to miss out but everyone else seems to be catered for. I asked managing director Colin Courtney where the idea for the game directed originally and how the game progressed from being just an idea to a finished product with a competition to win a Winter Olympic holiday worth more than £2,000 thrown in?

A long time ago Tynesoft released a smaller Olympic simulation, *Winter Olympics*, for the C16 and Electron. When it was two years old it was decided to update the program to take advantage of the technology now available. That was some six months ago and the product is now almost ready. How many programmers, artists and musicians were working on this suite of programs is difficult to tell, estimates varying from 12 to 14. Most of the personnel were in-house, although the music was all produced outside.

Managing directors are not all people who sit in glass towers throwing stones at each other; some like the thrill of holding a joystick as much as the rest of us, and Courtney cheerfully admits to having taken a hand in the testing. What was he looking for, bearing in mind that he was not only testing it but responsible for its ultimate release as well?

The main point seemed to be a balance of playability and graphics, not just superb graphics and action you would not waggle a paddle ball at. Never having written a winter Olympics simulation I would imagine that the simple task of choosing which events to use would be a problem in itself and I was correct. Some were discarded, and even ones which were there were sometimes changed before reaching an acceptable standard.

Most people have seen or played a downhill skiing event, and they wanted something different. There are now two views of the action, the main view from just behind the shoulder and a view through the goggles of the skier. Trees abound and one thing which

NTING



● **Terry Owen of Mastertronic – claims no mistakes in his games.**

had to be changed was the random course. It would appear that, trees being trees, they sometimes popped up where they were not supposed to do, resulting in a nasty accident as the skier was sliced in two in a very painful place.

Different machine versions changed as well. On the Atari ST version, the bobsleigh event started with a rather gory crash if you failed to make it down the course, showing a rolling head bouncing across the track. This has now, thankfully, been removed from the final game, so a word of praise for a company sensitive enough to stop using material like that.

A similar process takes place with adventures. It was reasonable enough of Paul Coppins of Rainbird not to admit any errors in Rainbird games, although we all know they exist. *The Guild of Thieves,* for example. Talking about adventures generally taking four to six months to test, as Coppins was, we must assume that Guild of Thieves falls into this category. I would have thought that four to six months would be sufficient time to eradicate some of the more obvious mistakes. On my humble Amstrad PCW I too could not type-in one of the hints, I tried examining a river bank and was told that I could not see the bank of Kerovnia; on another occasion I typed-in **Go To Bank** and was told, the 'f($ Is Here and it seemed odd also to be told that there are no trees here when I atempted to climb one in a forest I could go on.

In response to the question of what happens to a game from start to finish and how to ensure that no unwanted errors creep in, I was taken stage by stage through the development of one of the latest Level 9 games, *Gnome Ranger*. Pete Austin, Level 9 spokesman extraordinaire, said that they started by ensuring that the idea of the game was big enough to be usable, being fed up with material which runs out of steam halfway through. One example was a game submitted based on the theme of the Bermuda Triangle, which was an excellent idea for a game but the author had done it as a three-parter and by the end of part one had run out of UFO steam and set part two as a traditional explore-the-island-and-caves adventure while part three had an alien base which reminded Austin of nothing more extra-terrestrial than a shopping centre. Having made sure that the idea of Gnome Ranger was enough to sustain a whole game, the team decided to introduce a heroine called Ingrid.

Next to be considered were the major themes running through the game. As it was a three-parter, it was deicded to have an animal theme, a vegetable theme, and a mineral theme. From this they considered other puzzles and problems which could be incorporated to fit in with these three ideas.

After that, it is test, test, test, and one important point Austin makes is that they always prefer to test everything on their development machine – Atari – rather than produce a version for each computer which has to be tested individually. Many games take longer to test than just one and mistakes are corrected much faster if only the development machine is being used. Eradicate the common mistakes, in other words.

"... the programmer has generally not thought of all the implications of bringing together permutations of different objects."

After about two weeks of in-house testing, the game goes out – still on Atari only, – to a dedicated band of play testers, who conduct an exhaustive bug hunt by trying to type-in every possible combination of instructions to find what happens. This is why adventure testing is so difficult; the programmer has generally not thought of all the implications of bringing together permutations of different objects.

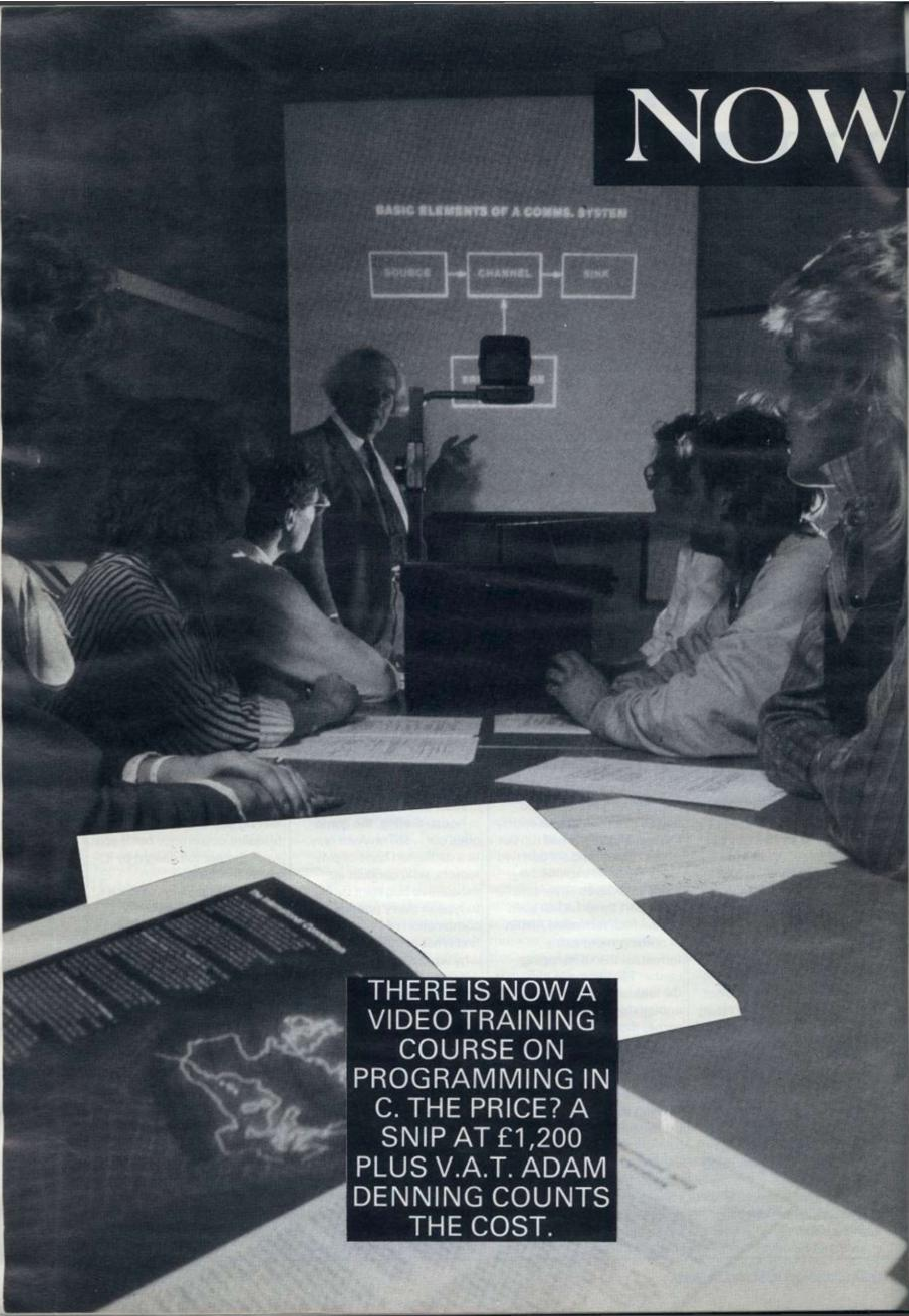
This reminds me of one of my favourite faults but it must be stressed this was a fault of the computer rather than the adventure. Playing the Infacom *Enchanter* round at a friend's house we were getting completely absorbed in the game. At one point there is a scene with a gallery of paintings. Reasonably enough you try and examine the paintings and, after being told all about them, you try examining a particular one. This I did and was in mid-command when the machine re-set itself, leaving me speechless and staring at the kind of screen I expect to see when turning on the machine. All that hard work ruined, until my friend pointed out "It is one minute to opening time". We went for a drink, and I must write a letter of congratulations to Infocom for having a built-in pub opening time detector in its adventures.

Such bugs are difficult to cater for and you never know at times whether an error is the fault of the machine or the program. Level 9 offered me another little story, concerning the aforementioned Gnome Ranger.

When attempting to restore a previously-saved position, about one in 120 times the machine would lock up, leaving you in limbo. Not a frequent occurrence but if you were the person caught by it, highly annoying.

Of all companies to which I spoke the story was more or less the same. You test the program over and over again, you get more and more people to test it, and when all concerned are satisfied it is alright, the product is released. A day later someone telephones and says "Do you know that if you **POKE** this with that you get infinite lives? Then, if you type **C-A-M-E-L** while holding the joystick upside down and playing the ZZ Top *Eliminator* album you score three trillion points?" Obvious, really, the kind of thing all play-testers do when trying a new game. It must be a hard life being a games tester.

NOWC



THERE IS NOW A VIDEO TRAINING COURSE ON PROGRAMMING IN C. THE PRICE? A SNIP AT £1,200 PLUS V.A.T. ADAM DENNING COUNTS THE COST.

C THE VIDEO

Your Computer magazine is pleased to offer its readers two pieces of computing wisdom which will serve well over the ensuing years. Item number one: the best way to learn something is to teach yourself. Item number two: the best way to make money is to train other people. Notice the almost-but-not-quite mutual exclusivity here; teaching is by no means profitable but training most certainly is!

Evidence of these facts is provided for us by Real Time Systems, the Isle Of Man-based company which distributes a training course in the language C in this country. The course is based around a series of six videos and a text book. As proof of fact two, the course costs a mere £1200 plus VAT to buy outright. Rental options are provided, though, to reduce the outlay.

Learning to program in C from a six-video course strikes one initially as a bizarre possibility. I remember when I learnt C. I had a copy of *The C Programming Language* by Kernighan & Ritchie, a PC and a dodgy C compiler. I also had a very good C programmer a phone call away for those awkward moments when nothing seemed to make sense. I had programmed in various other languages before, primarily Z80 assembler, but some Basic and BCPL, too. I took to C very quickly; it is easier to express oneself (from a programming point of view) far more succinctly in C than in any previous language.

LANGUAGES

It is fundamentally important to understand that this cannot be the case for all programmers. Some languages suit a given person, others don't, and such things cannot be changed by any amount of training. It is possible to teach a good Pascal programmer to be an average C programmer, but if he/she simply cannot get on with C, then it is no good trying to force the issue.

Training is something which a large number of companies have started to sell, mainly because an even larger number of companies are perhaps foolishly prepared to pay to be taught things which cannot always be taught. There is a level of training which can be offered and which will be useful to all comers. In the case here of teaching the craft of programming in C, I believe that the fundamentals of the language may be learnt, but that its application may not. Hence, video courses such as the one discussed here are not worthless. What are worthless, though, are those courses labelled along the lines of *'Advanced C Programming'*. To become advanced at programming in C, there is only one option: practise.

If we look at Real Time Systems' C Video Workshop Training Course in more detail, we can see just who it is aimed at and whether it succeeds in its aims. The book supplied with the package is the Thomas Plum publication *Learning to Program in C*, a popular tutorial book which sets out to teach the language step-by-step, rather than by throwing a few facts and a little analysis at the reader. Personally, I find the going rather too slow as I'm one of those people who never works through an entire book but reads the first chapter and starts programming, referring back to the book in a rush when I encounter something I cannot do. Nevertheless, as the basis for a formal training in the principles of programming in C, the book seems sound enough.

Also supplied with the course is a floppy disk containing worked examples and the course workbook. This workbook is a cheaply-produced thick A4 document which contains listings of each of the worked examples together with explanations of program lines or other course-related items. It also has the extremely annoying feature of having an aphorism or otherwise useless phrase at the top of every single page. An example is 'the road more or less taken' on one of the pages concerning the 'if' statement.

Also present in the workbook are exercises – a vital part of any training scheme – and checkpoints, or pages in reasonably arbitrary locations which use information gleaned from the course so far to pose problems for the trainee.

The main part of the course is the video presentation itself. Six VHS videos are used, one for each module of the workbook.

The videos are well-made and adopt a friendly but informative attitude. After each subject, a 'roving reporter' type looks at what has been learnt and tries to use it. The approach is neither patronising nor boring, and certainly doesn't blind with science.

If you are an individual programmer working for yourself, you will not buy this course unless you are convinced that it's the only way you can learn to program in C. If that is the case, it is probably time to consider being something other than a programmer. If you are aiming to buy for a corporation or institution, six or so people watching the videos at the same time and sharing the books would save money. Having said this, the workbooks are available separately at £20 each, and Learning to Program in C is available for £16.95, so six people learning from the same video purchase is not outrageously priced. However, it is very unlikely that a company would actually want to purchase the course outright – it is far more likely to want to hire the videos; the terms offered by Real Time Systems make this feasible.

As to whether the course achieves its aim – yes, it probably does. After all, if you were intent upon learning the basics of programming in C and you had sufficient spare time and interest, this course would give you the necessary background and experience. That does not alter the fact, though, that this course is intended for the corporate training market. It also does not alter the fact that the only way truly to learn to program in C is to roll up your sleeves and do it yourself.

". . . the only way truly to learn C is to roll up your sleeves and do it yourself."

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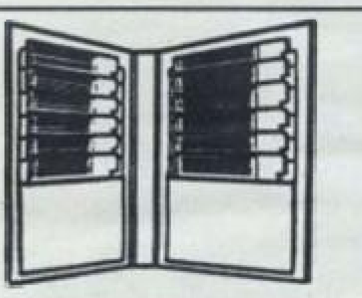
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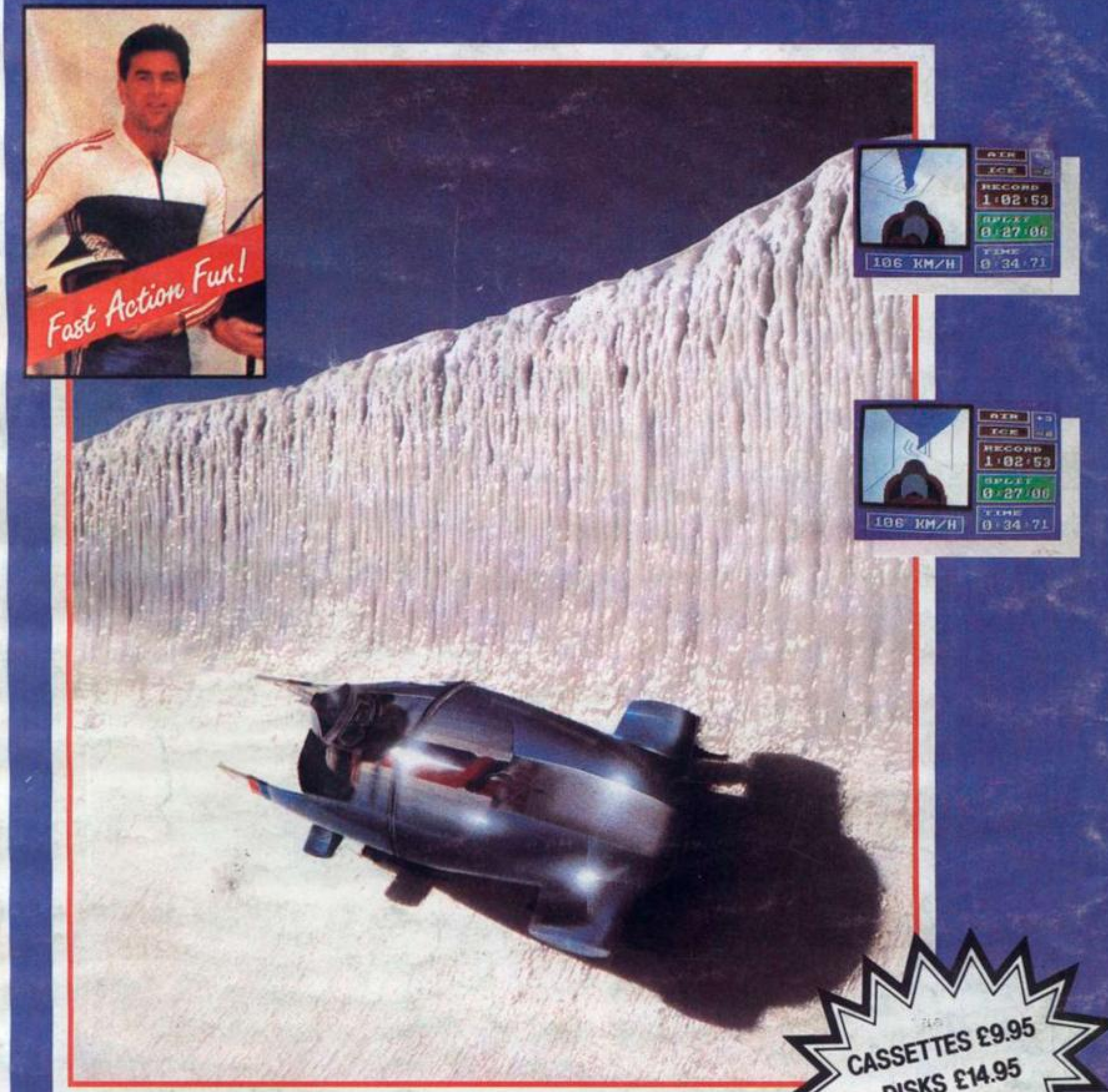
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